

EVIDENTIARY HEARING  
BEFORE THE  
CALIFORNIA ENERGY RESOURCES CONSERVATION  
AND DEVELOPMENT COMMISSION

In the Matter of: )  
 )  
Application for Certification for ) Docket No.  
The Ivanpah Solar Electric ) 07-AFC-5  
Generating System )  
\_\_\_\_\_ )

CALIFORNIA ENERGY COMMISSION  
HEARING ROOM A  
1516 NINTH STREET  
SACRAMENTO, CALIFORNIA

THURSDAY, JANUARY 14, 2010

9:10 A.M.

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Transcriber - Margo Hewitt, CET\*\*00480  
Contract No. 170-08-001

PETERS SHORTHAND REPORTING CORPORATION (916) 362-2345

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James Boyd, Associate Member

HEARING OFFICER AND ADVISERS

Paul Kramer, Hearing Officer

Kristy Chew, Adviser

Tim Olson, Adviser

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Arne Olson  
Energy and Environmental Economics

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ALSO PRESENT

Sid Sullivan (via teleconference)  
Sierra Club

Nicholas Abrams (via teleconference)  
Pacific Gas and Electric Company

Bruce Pavlik (via teleconference)

## I N D E X

	Page
Proceedings	1
Opening Remarks	1
Hearing Officer Kramer	1
Introductions	1
Topics	8
Project Alternatives	8
Applicant Witnesses G.Spaulding, S.Hill, G.Rubenstein, R.Gray, A.Olson	8
Direct Examination by Mr. Harris	10
Exhibits	10/342
CEC Witness S.Lee	62
Direct Examination by Mr. Ratliff - cont.	62
Examination of All Panel Witnesses: S.Hill, G.Spaulding,G.Rubenstein,R.Gray,A.Olson, B.Powers,S.Cashen,S.Lee,C.Chainey-Davis, R.Anderson	68
by All Parties	73
Afternoon Session	156
Examination of All Panel Witnesses-cont'd	156
Public Comment	289
Housekeeping Items	298
Exhibits	341/342
Briefing Schedule	343
Closing Remarks	361
Hearing Officer Kramer	361
Presiding Member Byron	361
Adjournment	365
Reporter/Transcriber Certificates	366

1 P R O C E E D I N G S

2 9:10 a.m.

3 HEARING OFFICER KRAMER: Welcome to the  
4 continuation of the hearing from January 13th in  
5 the Ivanpah Solar Electric Generating System case.  
6 We don't need to have introductions in the room  
7 here, but just for the sake of those of us here in  
8 the room, if the folks on the telephone could  
9 identify themselves, I'd appreciate it.

10 DR. CONNOR: Good morning; this is  
11 Michael Connor with Western Watersheds Project.

12 HEARING OFFICER KRAMER: Good morning.

13 MR. AARDAHL: Jeff Aardahl with  
14 Defenders of Wildlife in Sacramento.

15 MR. SULLIVAN: Sid Sullivan, Sierra  
16 Club.

17 MR. BAUR: This is Donald Baur with  
18 Perkins, Coie in Washington, D.C. for  
19 BrightSource.

20 MR. BRIZZEE: Bart Brizzee with the  
21 County of San Bernardino.

22 HEARING OFFICER KRAMER: Okay, Mr. Baur,  
23 how do you spell your last name?

24 MR. BAUR: B-a-u-r.

25 MS. CHAINEY-DAVIS: Carolyn Chainey-

1 Davis, California Energy Commission.

2 HEARING OFFICER KRAMER: Okay, the  
3 second gentleman who spoke, I think you're new to  
4 our group. Would you repeat your name and spell  
5 it. No, not Mr. Brizzee. Mr. Aardahl?

6 MR. AARDAHL: Jeff Aardahl with  
7 Defenders. A-a-r-d-a-h-l.

8 HEARING OFFICER KRAMER: Okay, you were  
9 a witness previously, is that right?

10 MR. AARDAHL: No, I've been  
11 participating by conference call.

12 HEARING OFFICER KRAMER: Okay, for some  
13 reason your name wasn't familiar to me, but I  
14 apologize.

15 Okay, anyone else on the telephone?

16 MR. ABRAMS: Nicholas Abrams from  
17 Pacific Gas and Electric.

18 HEARING OFFICER KRAMER: If you could  
19 spell your name?

20 MR. ABRAMS: N-i-c-h-o-l-a-s Abrams,  
21 A-b-r-a-m-s.

22 HEARING OFFICER KRAMER: This would be a  
23 time for me to remind the folks on the telephone  
24 that you can mute your microphones by either using  
25 the function that your phone provides or hitting

1       star-6. And then to revive your microphone, if  
2       you use star-6, you would just use star-6 again.  
3       But we need your cooperation so that we don't have  
4       lots of background noise distracting us here in  
5       the room because we have open phone lines.

6               And please don't put us on hold because  
7       that has given us music on occasion. And you may  
8       not even know that your system does that. But,  
9       please don't, please don't serenade us.

10              PRESIDING MEMBER BYRON: Mr. Brizzee,  
11       this is Commissioner Byron. Just a quick question  
12       for my own understanding. Were you with us  
13       yesterday or most of yesterday on the phone?

14              MR. BRIZZEE: Yes, Commissioner, I was  
15       there the whole time.

16              PRESIDING MEMBER BYRON: Okay, great.  
17       And were you planning on saying anything today?

18              MR. BRIZZEE: Probably not.

19              PRESIDING MEMBER BYRON: Okay. Thank  
20       you. Glad you're with us.

21              MR. BRIZZEE: All right, thank you.

22              HEARING OFFICER KRAMER: Okay, I think  
23       the first order of business was to continue the  
24       alternatives panel, unless -- let me ask first,  
25       though, do the parties have any preliminary

1 matters that they wish to raise at this point?

2                   Seeing none, let's bring back the  
3 alternatives panel from the -- from Tuesday. And  
4 we're going to add a couple of Mr. Harris'  
5 witnesses who were unable to be with us then. And  
6 he is going to ask them some preliminary  
7 questions, and then we'll toss the panel open for  
8 questions from all the parties in a sort of  
9 roundtable discussion that I think was starting to  
10 work pretty well at the end of yesterday.

11                   (Laughter.)

12                   DR. CONNOR: Mr. Kramer, may I ask a  
13 question?

14                   HEARING OFFICER KRAMER: Go ahead, Mr.  
15 Connor.

16                   DR. CONNOR: That is I have some  
17 specific questions, particularly for staff,  
18 relating to their testimony on Tuesday night. And  
19 it will be okay for me to address the specific  
20 witnesses?

21                   HEARING OFFICER KRAMER: Yes, and that  
22 was really after their alternatives testimony, is  
23 that correct?

24                   DR. CONNOR: That's correct.

25                   HEARING OFFICER KRAMER: Okay, yes.



1       However, when you -- you're allowed to address a  
2       question to a specific witness, but under the sort  
3       of rules of the game here, the other witnesses can  
4       chime in with their thoughts if they choose to do  
5       so, as well.

6               MS. SMITH:  Mr. Kramer, Mr. Ratliff, is  
7       Mr. Anderson available by phone?  I didn't hear.

8               MR. RATLIFF:  We expect him to be.

9               MR. ANDERSON:  This is Dick Anderson;  
10       I'm on the phone.

11              MR. HARRIS:  I've got a question.  I  
12       talked to Mr. Ratliff and I guess Ms. Lee has a  
13       presentation, as well.  Would you like our  
14       witnesses to go, and then Ms. Lee, and then  
15       constitute the entire gang at that point?  Or do  
16       you want Ms. Lee to go first, and then my  
17       witnesses, and then the entire panel?  Or how  
18       would you like to proceed?

19              HEARING OFFICER KRAMER:  I don't really  
20       have a preference, do you?

21              MR. HARRIS:  I don't, either.  We can go  
22       first or we can go second.  I just knew Ms. Lee  
23       had something apparently she wanted to do, so.

24              MR. RATLIFF:  And you did, too.  I mean  
25       you wanted to have your witnesses be directed

1 first?

2 MR. HARRIS: Correct, yes.

3 MR. RATLIFF: So, you want --

4 MR. HARRIS: Do you want us to go first?

5 It doesn't matter to me.

6 MR. RATLIFF: Does that include Arne

7 Olson, or does --

8 MR. HARRIS: Yeah, I've got a panel that  
9 were pre, you know, identified on our witness list  
10 before. My only question was whether Ms. Lee  
11 wanted to go before my panel or after my panel.

12 MR. RATLIFF: It makes no difference to  
13 us.

14 HEARING OFFICER KRAMER: Go ahead, Mr.  
15 Harris.

16 MR. HARRIS: Okay. Mr. Cashen, now that  
17 you're comfortable --

18 (Laughter.)

19 MR. HARRIS: Sorry. I'm not getting a  
20 Christmas card from you, am I? So, --

21 MR. CASHEN: Nobody does.

22 (Laughter.)

23 MR. HARRIS: So if I've got this  
24 straight then, we'll put my panel on, Mr. Olson,  
25 Dr. Spaulding and the rest of my intrepid group of

1       troubadours. And then we'll have Ms. Lee. And  
2       then we'll have everybody come up. Is that  
3       acceptable to everybody?

4               HEARING OFFICER KRAMER: Okay. So who's  
5       going to be first, then, of your witnesses?

6               MR. HARRIS: I'll bring up my entire  
7       panel.

8               HEARING OFFICER KRAMER: Okay, that's  
9       fine.

10              MS. BELENKY: Excuse me, Mr. Kramer.  
11       I'm trying to make sure that our witness, Bill  
12       Powers, can be on the phone during this, and I  
13       believe he will be calling in quite soon. Because  
14       this testimony is relevant to his testimony, which  
15       is also still open. I'm trying to make sure he's  
16       on the phone.

17              HEARING OFFICER KRAMER: Mr. Powers, are  
18       you with us yet? I suspect there will be  
19       testimony Mr. Harris is going to elicit at the  
20       moment that's not related to Mr. Powers' issue, is  
21       that correct?

22              MR. HARRIS: We'll get there hopefully  
23       in short order. So, you may -- can you call  
24       him --

25              MS. BELENKY: Yeah.

1                   MR. HARRIS:  -- and see if he's  
2           available?

3                   HEARING OFFICER KRAMER:  Okay, could you  
4           put on your other witness till --

5                   MR. HARRIS:  Yeah, I'll have the whole  
6           panel come up --

7                   HEARING OFFICER KRAMER:  Okay.

8                   MR. HARRIS:  -- if they will.  It's five  
9           members of our panel.  At least the five for  
10          direct.

11                   (Pause.)

12                   HEARING OFFICER KRAMER:  Let's introduce  
13          the panel again by name for both the continuing  
14          and the new witnesses.  Continuing witnesses, you  
15          don't need to spell your names again, but the new  
16          witnesses will.  That will help to insure your  
17          names are correctly spelled in the transcript.

18                   So, again, on my left.

19                   DR. SPAULDING:  Continuing.  W. Geoffrey  
20          Spaulding.

21                   MR. RUBENSTEIN:  Gary Rubenstein.

22                   MR. HILL:  Steve Hill.

23                   HEARING OFFICER KRAMER:  Gary, I think  
24          that other mic you can just leave there.  It's  
25          just for the court reporter.

1                   MR. OLSON:  Arne Olson, and it's A-r-n-e  
2                   O-l-s-o-n.

3                   MR. GRAY:  New witness.  Roger Gray.  
4                   R-o-g-e-r G-r-a-y.

5                   MR. HARRIS:  Just for the edification of  
6                   the witnesses, the green light means that the mic  
7                   is on.  But I think Mr. Petty got that, is that  
8                   correct?

9                   THE REPORTER:  Yes.

10                  HEARING OFFICER KRAMER:  Go ahead, Mr.  
11                  Harris.

12                  MR. HARRIS:  Okay, thank you.  The panel  
13                  has been previously sworn.

14                  HEARING OFFICER KRAMER:  Well, was each  
15                  gentleman sworn?

16                  MR. HARRIS:  I guess not.  I thought  
17                  maybe they were in the room on Tuesday and sworn  
18                  then.  But, if not, let's just make sure.  
19                  Whereupon,

20                  GEOFFREY SPAULDING, GARY RUBENSTEIN, STEVE HILL,

21                                 ROGER GRAY and ARNE OLSON

22                  were called as witnesses herein, and after first  
23                  having been duly sworn, were examined and  
24                  testified as follows:

25                  MR. HARRIS:  I think I'll go through my

1 usual litany, and I'll actually ask Mr. Rubenstein  
2 -- I told him not to surprise me, but I'll  
3 surprise him with asking him to respond on behalf  
4 of the panel with the yeses for this section

5 DIRECT EXAMINATION

6 BY MR. HARRIS:

7 Q Mr. Rubenstein, what subject matter  
8 testimony is the panel here to sponsor today?

9 MR. RUBENSTEIN: This panel is here to  
10 sponsor testimony on alternatives.

11 MR. HARRIS: And were the documents that  
12 are being sponsored identified in the prefiled  
13 testimony of the applicant?

14 MR. RUBENSTEIN: Yes, they were.

15 MR. HARRIS: And that's opening and  
16 rebuttal testimony sections 1-C. Any changes,  
17 corrections or clarifications to your testimony?  
18 And I actually believe that maybe Mr. Olson has a  
19 couple of clarifications that I'd like him to  
20 read. Do you have them before you, Arne?

21 MR. OLSON: Yes, I do.

22 MR. HARRIS: Okay, go ahead.

23 MR. OLSON: I'd like to make one  
24 clarification on page A-14 of my prefiled  
25 testimony.

1 HEARING OFFICER KRAMER: Is that opening  
2 or rebuttal?

3 MR. HARRIS: That's rebuttal testimony.  
4 Those are the ones that have page numbers, so,  
5 luckily.

6 MS. BELENKY: What -- I'm sorry?

7 MR. HARRIS: Rebuttal testimony, A for  
8 alternatives, 14.

9 Hang on a second. Let's give -- are you  
10 ready, Lisa?

11 MS. BELENKY: Um-hum.

12 MR. HARRIS: Okay. Go ahead, Arne, and  
13 read the change into the -- or the correction.

14 MR. OLSON: It's at the very first line  
15 on page A-14, the second sentence where it says:  
16 Navigant's estimates do not account for shading.  
17 And more significantly, assume all rooftops  
18 participate."

19 I would like to strike the words after  
20 "estimates" and up through "significantly." So it  
21 should read: Navigant's estimates" strike out this  
22 next piece "assume all rooftops participate."

23 MR. HARRIS: And with that correction or  
24 clarification, Mr. Rubenstein, were the documents  
25 prepared, on behalf of the panel, either by you or

1 at your direction?

2 MR. RUBENSTEIN: Yes, under the  
3 direction of those of us on the panel.

4 MR. HARRIS: And the facts stated  
5 therein are true to the best of your knowledge, is  
6 that correct?

7 MR. RUBENSTEIN: That's correct.

8 MR. HARRIS: And the opinions stated  
9 therein are those of the panel?

10 MR. RUBENSTEIN: That is correct.

11 MR. HARRIS: And the panel adopts this  
12 as their testimony for the proceeding?

13 MR. RUBENSTEIN: Yes, we do.

14 MR. HARRIS: Okay, we're going to  
15 proceed, I think, pretty close from the  
16 Commissioners' left to right. And the first three  
17 witnesses have actually previously testified, so  
18 when I get to Mr. Olson and Mr. Gray, I'll  
19 actually ask them to do their qualifications at  
20 that point.

21 So unless somebody wants me to have Mr.  
22 Rubenstein, Mr. Hill or Dr. Spaulding restate  
23 their qualifications I'll proceed.

24 HEARING OFFICER KRAMER: Go ahead.

25 MR. HARRIS: All right. Let's start



1 with Mr. Rubenstein and Dr. Spaulding. Gary, are  
2 you guys familiar with the direct testimony of the  
3 California Native Plant Society regarding the  
4 potential loss of carbon sequestration capability  
5 as a result of the Ivanpah project?

6 MR. RUBENSTEIN: Yes, I am.

7 DR. SPAULDING: I am.

8 MR. HARRIS: And -- thank you. I'm  
9 sorry. And have you both reviewed the paper by  
10 Wohlfahrt, et al, cited in the CNPS testimony as  
11 exhibit 1008?

12 MR. RUBENSTEIN: Yes, we both have.

13 MR. HARRIS: Can you briefly describe  
14 the methodology used by the authors of exhibit  
15 1008 to estimate the amount of carbon  
16 sequestration attributable to desert ecosystems  
17 such as the location of the Ivanpah project?

18 MR. RUBENSTEIN: Yes. The researchers  
19 used an instrument known as an open-path, infrared  
20 gas analyzer to measure carbon dioxide  
21 concentrations at a specific elevation above the  
22 ground in the desert, along with certain  
23 meteorological or weather parameters, and the  
24 moisture content of the air.

25 I'm familiar with the infrared gas

1 analyzer technology because it is similar to the  
2 closed path infrared gas analyzers that are  
3 commonly used in continuous emissions monitoring  
4 systems for both stationary and mobile sources of  
5 air pollution.

6 And it's also very similar to the open  
7 path infrared gas analyzers that are commonly used  
8 for remote sensing of emissions from mobile  
9 sources at a distance.

10 In simplest terms, the technique used by  
11 these researchers was to measure CO2  
12 concentrations and corresponding vertical wind  
13 direction and speed, meaning whether the winds  
14 were rising up from the ground, or the winds were  
15 heading down towards the ground.

16 And they made these measurements over a  
17 period of two years at a location in the Mojave  
18 Desert. They then separated these measurements  
19 depending on whether the wind was going up away  
20 from the ground or going down towards the ground.

21 And applied a fairly lengthy series of  
22 statistical tests and filtering techniques to the  
23 data. And then computed the difference in carbon  
24 dioxide concentrations for upflowing winds, as  
25 compared with downflowing winds.

1                   They then finally attributed any  
2                   difference in CO2 concentrations that they  
3                   measured to the carbon sequestration effect of the  
4                   desert ecosystem.

5                   MR. HARRIS: Was this method able to  
6                   determine whether the carbon was taken up by  
7                   soils, as opposed to being taken up by plant  
8                   matter?

9                   MR. RUBENSTEIN: No. All they were able  
10                  to do with this method is determine difference in  
11                  the CO2 concentrations depending on whether the  
12                  air was moving up away from the soil or down  
13                  towards the soil.

14                  MR. HARRIS: And were these measurements  
15                  made continuously over that two-year period?

16                  MR. RUBENSTEIN: Not quite. There are a  
17                  number of gaps in the data that are identified in  
18                  the paper. In particular, during rainy conditions  
19                  they were often unable to obtain data because the  
20                  eddy covariant system, which is what this whole  
21                  measurement and analytical technique is referred  
22                  to, that technique did not work properly during  
23                  those periods.

24                  MR. HARRIS: So is the exclusion of  
25                  periods of rainfall significant? Does that

1 matter?

2 MR. RUBENSTEIN: Yes, I believe it does,  
3 because one of the mechanisms by which CO2 could  
4 be absorbed or desorbed from the soil is greatly  
5 influenced by whether the soil is moist or not.  
6 And that's another thing that's identified in this  
7 paper.

8 Consequently, by systematically  
9 eliminating periods when there was rainfall  
10 occurring, they had to have introduced some kind  
11 of an error to their measurements. But I'm unable  
12 to quantify what that error might be.

13 MR. HARRIS: How accurate are infrared  
14 gas analyzers in this type -- of the type used in  
15 the study?

16 MR. RUBENSTEIN: The accuracy of  
17 infrared gas analyzers is typically a function of  
18 the basic analyzer accuracy, as well as the  
19 accuracy of the calibration gases used to  
20 calibrate the instrument.

21 Under the best of circumstances, the  
22 combination of the infrared gas technology and the  
23 best available calibration gases would be expected  
24 to result in a measurement accuracy of plus or  
25 minus 1 percent of full scale.

1 Under typical conditions, and more  
2 particularly under field conditions, I would  
3 expect these measurements to be accurate to be not  
4 better than roughly 2 to 5 percent of full scale.

5 MR. HARRIS: In your opinion is this  
6 level of measurement accuracy sufficient to draw  
7 technically defensible conclusions about carbon  
8 sequestration using this technique?

9 MR. RUBENSTEIN: No. Even under --  
10 global average CO2 concentrations are on the order  
11 of 400 parts per million in the atmosphere. Even  
12 if the accuracy of this measurement system was as  
13 good as plus or minus 1 percent of the actual  
14 reading, and that's much better than what I  
15 indicated as the typical accuracy, which is plus  
16 or minus 1 percent of full scale, it means they  
17 would have been able to measure CO2 concentrations  
18 of approximately 400 parts per million with an  
19 accuracy of plus or minus 4 parts per million; 1  
20 percent of 400 is 4.

21 Although the paper referenced it as  
22 exhibit 1008, it didn't disclose the actual CO2  
23 concentrations measured during the study. It's  
24 hard to imagine, given the relatively slow rate of  
25 carbon sequestration we're talking about, that the

1 differences in upflow versus downflow  
2 concentrations would have been anywhere near as  
3 large as 4 parts per million.

4 Even a 1 parts per million difference  
5 between the upflow and downflow concentrations  
6 would indicate a substantial uptake in carbon that  
7 would be noticeable by any increase in the rise in  
8 the elevation of the ground because you have so  
9 much material accumulating on the surface.

10 Consequently, I believe the CO2  
11 concentrations they were attempting to measure  
12 were well below the sensitivity of the instruments  
13 that they were using.

14 MR. HARRIS: Dr. Spaulding, a couple of  
15 related questions. Dr. Spaulding, you stated  
16 before that you're familiar with the testimony of  
17 the California Native Plant Society regarding the  
18 potential loss of carbon sequestration capability  
19 as the result of a construction project, is that  
20 correct?

21 DR. SPAULDING: Yes, I am.

22 MR. HARRIS: Can you briefly summarize  
23 the vegetation and soil characteristics at the  
24 study point that the Wohlfahrt paper, exhibit  
25 1008, used?

1 DR. SPAULDING: Yes, the vegetation of  
2 the study plot and vicinity is creosote, white fir  
3 sage desert scrub, with other perennials such as  
4 rice grass and box thorn. Wohlfahrt, et al, also  
5 reported that the substrate supports a well-  
6 developed cryptogam crust, which is a feature of  
7 some, but not all, desert soils that we discussed  
8 a couple of days ago.

9 A cryptogam crust is a microbiotic crust  
10 that typically anchors soil-rich substrate and has  
11 been attributed as an important soil stabilizer in  
12 some ecosystems, as well as capable of fixing  
13 various nutrients.

14 MR. HARRIS: Did the Wohlfahrt study  
15 attribute carbon sequestration to certain elements  
16 of the study plot or to desert vegetation, in  
17 general?

18 DR. SPAULDING: After considerable space  
19 in Wohlfahrt's paper devoted to addressing the  
20 analytic uncertainty of their studies, they  
21 suggest that the cryptogam crust may be  
22 responsible for high levels of carbon uptake.

23 MR. HARRIS: And do those same elements  
24 occur at the Ivanpah site? And, if so, you know,  
25 what's your estimate of the area that may have

1 similar conditions?

2 DR. SPAULDING: No, generally speaking  
3 they do not. Cryptogam crust is quite rare in the  
4 project area due to differing surface soil  
5 conditions. Areas with similar conditions occur  
6 elsewhere in the Ivanpah Valley, but due to  
7 prevailing wind conditions and geomorphic factors,  
8 they are not prevalent within the project area.

9 MS. BELENKY: Objection. I'm sorry, I  
10 don't know what the basis is for that statement.  
11 I don't believe there was soil surveys done that  
12 were comprehensive on the site for cryptogamic  
13 crusts.

14 Just if you could --

15 MR. HARRIS: Could I ask the witness --

16 MS. BELENKY: -- say what the basis is?

17 Thank you.

18 MR. HARRIS: Can I ask the witness to  
19 describe the basis for that last statement,  
20 please.

21 DR. SPAULDING: Yes. In the course of  
22 three days worth of field work in, as I recall,  
23 either 2007 or early 2008, that winter we surveyed  
24 randomly, not necessarily totally randomly, but a  
25 selected area of at least 20 plots in Ivanpah's 1,



1       2, and 3 to specifically characterize the soil  
2       surface for geoarcheological assessment. At each  
3       station we took pictures of the soil surface,  
4       characterized the relative development or lack  
5       thereof, of desert pavement. And would have noted  
6       if there had been any cryptogam crust present.

7               MR. HARRIS: Ms. Belenky, is that --  
8       you'll have a chance for cross. Is that  
9       sufficient?

10              MS. BELENKY: That's fine, thank you.

11              MR. HARRIS: So the objection's --

12              MS. BELENKY: We'll cross.

13              MR. HARRIS: -- withdrawn then?

14              MS. BELENKY: Yes. The objection is  
15       withdrawn. We will cross-examine on that  
16       question.

17              MR. HARRIS: Thank you. Just wanted  
18       everything straight there.

19              Were there any other studies that raised  
20       questions about the methodology and the results of  
21       the Wohlfahrt study?

22              DR. SPAULDING: Yes, a 2009 paper by  
23       William Schlesinger and colleagues questioned  
24       Wohlfahrt et al's study, as well as other studies  
25       based on first principles analysis.

1                   MR. HARRIS: And can you briefly  
2 summarize what they found?

3                   DR. SPAULDING: Yes, simply put, first  
4 principle analysis could be termed similar to the  
5 red-face test. It's a rational analysis and  
6 basically it approaches a claim for an enormous  
7 carbon uptake by -- enormous in this case being  
8 more than a metric ton per square meter, during  
9 the -- it begs the question, where does the carbon  
10 go.

11                   And a thorough review of potential  
12 carbon sinks in the area shows quite clearly there  
13 are no carbon sinks that could account for such  
14 large reported carbon sequestration values.

15                   MR. HARRIS: Okay, thank you. I'd like  
16 to switch now to Mr. Hill and kind of tee this up  
17 a little differently.

18                   Mr. Hill, you are, though, familiar with  
19 the testimony of the California Native Plant  
20 Society in this regard, is that correct?

21                   MR. HILL: Yes, I am.

22                   MR. HARRIS: And you have reviewed the  
23 paper by Wohlfahrt that's exhibit 1008 in this  
24 proceeding?

25                   MR. HILL: Yes, I have.

1                   MR. HARRIS: So even though Mr.  
2 Rubenstein and Dr. Spaulding have presented their  
3 critique of the methodologies of Wohlfahrt, I'm  
4 going to ask you to apply that methodology just as  
5 Wohlfahrt applied it. Is that clear?

6                   MR. HILL: Yes, it is clear.

7                   MR. HARRIS: Do you share the concerns  
8 about the methodology and the testimony -- again,  
9 before you proceed, I just want to make sure that  
10 we're clear about this -- do you share the  
11 concerns that the rest of the panel has expressed  
12 about that particular document?

13                  MR. HILL: Yes, I do share those  
14 concerns.

15                  MR. HARRIS: Okay, thank you. Let's  
16 then move on to application of that methodology to  
17 this site. So, have you made calculations based  
18 on the Wohlfahrt paper with regard to Ivanpah?

19                  MR. HILL: Yes, I have. I have  
20 calculated the amount of carbon dioxide that would  
21 be absorbed by undisturbed desert soil assuming  
22 that the annual carbon flows reported in the  
23 Wohlfahrt papers are real, and are applicable to  
24 this site, and are sustainable over the life of  
25 the project.

1                   MR. HARRIS: Okay, and again, you don't  
2 necessarily agree with those assumptions, but  
3 that's what you assumed to apply this methodology,  
4 is that correct?

5                   MR. HILL: Yes, that is correct.

6                   MR. HARRIS: Can you please describe the  
7 calculation?

8                   MR. HILL: Wohlfahrt reported an annual  
9 carbon uptake on the order of 105 grams of carbon  
10 per square meter. That's about 1.5 metric tons of  
11 carbon dioxide per year per acre for a desert  
12 ecosystem.

13                   And in the Wohlfahrt he did not specify  
14 what the mechanism for that uptake was, whether  
15 it's being taken up by plants for soil biota or by  
16 chemical reactions in the soil.

17                   Ivanpah's solar fields are expected to  
18 cover about 3500 acres. In order to be  
19 conservative I used an acreage of disturbed land  
20 of 4060 acres to calculate the potential carbon  
21 uptake.

22                   MR. HARRIS: So your calculations are  
23 based on the 4060 acres, in other words, that's  
24 correct?

25                   MR. HILL: Yes, that's correct.

1                   MR. HARRIS:  So how much CO2 is that,  
2           then?

3                   MR. HILL:  1.56 metric tons of carbon  
4           dioxide per acre times 4060 acres if 6326 metric  
5           tons of carbon dioxide per year.

6                   MR. HARRIS:  So would the Ivanpah  
7           project eliminate all that potential carbon  
8           uptake?

9                   MR. HILL:  Probably not.

10                  MR. HARRIS:  And why not?

11                  MR. HILL:  Well, of the mechanisms that  
12           have been potentially identified, -- as I  
13           mentioned earlier, nobody knows where this carbon  
14           is going, if it's in fact, going anywhere -- of  
15           the mechanisms that have been suggested, if it's  
16           going into the plants then any plants that are  
17           left undisturbed in the project area would  
18           continue to absorb.

19                  If it's being taken up by chemical  
20           reactions in the soil, then the soil's going to  
21           still be there.  And the potential for uptake will  
22           be not very much affected.

23                  MR. HARRIS:  If it's going into the  
24           organisms in the soil?

25                  MR. HILL:  And if it's going into the

1 organisms in the soil, again to the extent that  
2 those organisms remain undisturbed they will  
3 continue to function as they functioned before.

4 MR. HARRIS: So you've made the  
5 calculations, greenhouse gas calculations, for  
6 this project, based upon this?

7 MR. HILL: Yes. I assumed that what --  
8 I made the calculations as if all of those  
9 potential mechanisms were shut off by the project.

10 MR. HARRIS: Okay, so go ahead and  
11 please explain those calculations.

12 MR. HILL: Again, I calculated the  
13 amount of carbon dioxide based on Wohlfahrt's  
14 analysis, 1.56 metric tons per acre, multiplied it  
15 time the total acreage. And came up with the  
16 total absorption rate of 6326 metric tons of  
17 carbon dioxide per year.

18 MR. HARRIS: Okay. And on a megawatt  
19 hour basis, can you please explain that?

20 MR. HILL: I have calculated the amount  
21 of carbon dioxide that would be displaced by the  
22 project. This is the amount of carbon dioxide  
23 that would be emitted by a fossil fuel-fired  
24 facility that would be generating the same  
25 megawatts.

1                   Every megawatt hour --

2                   MR. HARRIS: I'm sorry, Steve, I'm sorry  
3                   to interrupt. What kind of producer are you  
4                   assuming would be displaced?

5                   MR. HILL: I assumed that the kind of  
6                   producers that would be displaced would be a  
7                   modern, new, combined cycle, natural gas-fired  
8                   turbine that would be a load-following turbine in  
9                   the current mix.

10                  MR. HARRIS: Okay. Would some of those  
11                  be peaking facilities, as well?

12                  MR. HILL: Yes. The Ivanpah generates  
13                  energy during the peak hours, during the middle of  
14                  the day. And so the megawatt hours that would be  
15                  displaced by the solar power would be those that  
16                  are currently generated by, in some cases peakers,  
17                  in some cases load-following turbines.

18                  MR. HARRIS: Will Ivanpah displace other  
19                  renewable energy production?

20                  MR. HILL: No, it is unlikely that  
21                  Ivanpah would displace renewable energy.

22                  MR. HARRIS: Can you describe the  
23                  calculations for CO2 that would have been  
24                  displaced by Ivanpah, using these assumptions?

25                  MR. HILL: Yes. I used an emission

1 factor for CO2 that corresponds to a new combined  
2 cycle turbine. I used a factor of 0.383 metric  
3 tons of carbon dioxide per megawatt hour for  
4 displaced generation. This factor comes from the  
5 Commission's final decision on Avenal Power Plant.

6 Because the boilers at Ivanpah would be  
7 used in the morning and during intermittent cloud  
8 cover, as you've heard in previous testimony,  
9 there will still be carbon dioxide emissions  
10 associated with the Ivanpah project.

11 The amount, based on the annual emission  
12 rates that we've talked about, would be about  
13 0.029 metric tons of carbon dioxide per megawatt  
14 hour. So there's a net systemwide reduction in  
15 carbon dioxide emissions due to the operation of  
16 the solar power plant of 0.354 metric tons of  
17 carbon dioxide per megawatt hour production.

18 MR. HARRIS: Okay. Assuming Ivanpah  
19 generates about ten hours a day, how do those  
20 numbers come out?

21 MR. HILL: Assuming ten hours a day, 360  
22 days a year, the amount of CO2 displaced by  
23 Ivanpah is 509,760 metric tons of carbon dioxide  
24 per year.

25 MR. HARRIS: And how does that compare



1 to the amount of CO2 that was likely sequestered  
2 in the land according to the Wohlfahrt study?

3 MR. HILL: Again, assuming that the  
4 carbon uptake reported by Wohlfahrt is real, that  
5 the uptake rate is applicable to this site, that  
6 the uptake rate is sustainable over the life of  
7 the project, and that the project completely stops  
8 the uptake, Ivanpah will displace 80 times more  
9 carbon than the land would have sequestered.

10 MR. HARRIS: So, 80 times more  
11 displacement by the project than the land, using  
12 that methodology?

13 MR. HILL: That's correct. If you  
14 assume, for example, that half the vegetation  
15 remains and the vegetation is the source of the  
16 uptake, then the solar plant would displace 160  
17 times more.

18 MR. HARRIS: Okay, thank you. I want to  
19 move now to a different topic, and to Mr. Gray.

20 Roger, can you -- actually before you  
21 start we're going to have you summarize your  
22 qualifications for the Committee, if you could  
23 briefly.

24 MR. GRAY: Yes, I have over 25 years  
25 experience in the electric utility industry. And

1       for purposes of the subject those relevant  
2       portions of my experience are as Director of  
3       Resources Planning at Pacific Gas and Electric,  
4       and Director of Systems Operations, then known as  
5       Power Control, at Pacific Gas and Electric.

6               My education is a BS degree in  
7       electrical engineering power systems, and a BS  
8       degree in computer science from UC Berkeley.

9               MR. HARRIS:  Okay, thank you.  And I  
10      think you and Mr. Olson are both going to focus on  
11      rebutting Mr. Powers' testimony.  So, let's start  
12      there.

13              So, is Mr. Powers' assertion that --

14              HEARING OFFICER KRAMER:  Mr. Harris, can  
15      we first check and see if Mr. Powers is with us on  
16      the telephone?

17              MS. BELENKY:  Sorry.

18              HEARING OFFICER KRAMER:  Have you heard  
19      from him at all, Ms. Belenky?

20              MS. BELENKY:  We just left a message.  I  
21      talked to him yesterday.  He was going to call in  
22      right now, so apparently something has come up.

23              HEARING OFFICER KRAMER:  Well, it would  
24      be our preference to go ahead, I think.  Who's  
25      that on the telephone?

1                   Okay, Mr. Powers, one more time, are you  
2                   with us?

3                   MS. ANDERSON:   He's not because he  
4                   doesn't have the call-in information handy.

5                   MS. BELENKY:   Oh, I did --

6                   HEARING OFFICER KRAMER:   So you're in  
7                   contact with him?

8                   MS. ANDERSON:   Yes, I just called him on  
9                   the telephone.

10                  HEARING OFFICER KRAMER:   Okay.

11                  MS. BELENKY:   Okay, --

12                  MS. ANDERSON:   He asked me for the call-  
13                  in information.

14                  MR. HARRIS:   Mr. Kramer, I --

15                  MS. BELENKY:   I did send it to him.

16                  MR. HARRIS:   -- I wouldn't mind having a  
17                  quick bio break anyway if you want to give them  
18                  the time to give him the dial-in number, so.

19                  MS. BELENKY:   Yeah, I mean --

20                  HEARING OFFICER KRAMER:   Okay, we'll go  
21                  off the record for a moment.

22                  (Off the record.)

23                  HEARING OFFICER KRAMER:   Back on the  
24                  record.   Mr. Powers, are you still hearing us?

25                  MR. POWERS:   Yes.

1 HEARING OFFICER KRAMER: Okay. Mr.  
2 Harris, go ahead.

3 MR. HARRIS: Okay, back on the record.  
4 I think we'd just done Mr. Gray's qualifications,  
5 and we'll start now again.

6 Is Mr. Powers' assertion that  
7 distributed PV is a viable direct replacement for  
8 all central station power plants correct?

9 MR. GRAY: No.

10 MR. HARRIS: Is your microphone on?  
11 Maybe you can get it close?

12 MR. GRAY: Yes, my microphone is on, and  
13 the answer was no.

14 MR. HARRIS: Okay, thank you. And just  
15 for the panel's edification, the microphones seem  
16 to be, especially the one near Mr. Rubenstein, a  
17 little lower in volume. So keep them pretty close  
18 for Mr. Petty if you would, so.

19 Can you summarize the major issues with  
20 distributed PV from a system planning and system  
21 operating perspective?

22 MR. GRAY: Yes. Distributed PV is  
23 variable. It's not dispatchable and controllable.  
24 It's masked and unforecasted.

25 MR. HARRIS: What do you mean by

1 variable, and how does that affect system  
2 operations?

3 MR. GRAY: To reliably and safely  
4 operate an electric system you have to  
5 continuously balance generation to load.  
6 Historically dispatchable and flexible generation  
7 was required to follow changing loads.

8 As intermittent resources, such as  
9 distributed PV, are added to the mix, additional  
10 dispatchable and flexible generation will be  
11 required to follow not only changing loads, but  
12 also changing generation.

13 MR. HARRIS: Why is this less of an  
14 issue for solar-thermal plants like the Ivanpah  
15 project?

16 MR. GRAY: Well, of course, all solar  
17 insolation is variable. However it is less  
18 variable at the Ivanpah location specifically than  
19 it would be from any areas associated with  
20 distributed PV.

21 Additionally, plant operators at Ivanpah  
22 will be tied to the scheduling coordinators, will  
23 have weather information and other forecasting  
24 abilities and requirements for system operations.

25 Also due to thermal mass, solar-thermal

1 plants have less fluctuation due to short-term  
2 fluctuations in solar insolation.

3 And finally, solar-thermal plants may  
4 use natural gas to smooth out fluctuations  
5 depending on physical plant configuration, the  
6 PPAs underlying those plants, and other factors.

7 MR. HARRIS: What do you mean by  
8 distributed PV being more unpredictable?

9 MR. GRAY: Well, first, by its nature  
10 it's very distributed. There's currently no  
11 obligation for others to forecast production or  
12 maintenance status and give information to system  
13 operators. So it's institutionally less  
14 predictable.

15 It's not controllable or in  
16 communication with system operations as are  
17 central station plants.

18 MR. HARRIS: Okay, and you said also  
19 that it was masked, so how is distributed PV  
20 masked?

21 MR. GRAY: What I mean by masked is that  
22 it masks the underlying load. distributed PV, at  
23 least in my -- you know, distributed PV, it's tied  
24 to a load or a customer. And the underlying load  
25 is always there.

1                   And if the distributed PV is operating  
2           then the load appears not to be there because of  
3           the relative balance of generation and load.

4                   System operators, however, have to  
5           account for the possibility that the distributed  
6           PV to go offline and the system operator would be  
7           obligated to immediately serve the underlying  
8           load. This raises both planning and operating  
9           challenges.

10                  MR. HARRIS: So, what's your overall  
11           conclusion about distributed PV from a system  
12           planning and a system operations perspective?

13                  MR. GRAY: I believe the distributed PV  
14           will be a part of an overall resource mix.

15                  MR. HARRIS: I'm sorry, you said will  
16           be?

17                  MR. GRAY: Will be.

18                  MR. HARRIS: Okay, thank you.

19                  MR. GRAY: Will be part of an overall  
20           resource mix. However, it's not as simple as  
21           saying that distributed PV can be substituted on a  
22           one-for-one basis with central station generating  
23           plants.

24                  Distributed PV raises new planning and  
25           operating challenges. At less than one-half or 1

1       percent of load, those challenges may not appear  
2       to be too great. But as the percentage climbs, so  
3       will the challenges.

4               Distribution circuits, and transmission  
5       circuits, as well, may need to be re-engineered.  
6       System operators will have to operate and respond  
7       to fluctuations in distributed generation and so  
8       forth.

9               From a planning and operating standpoint  
10       I would not want to put all my eggs in on basket  
11       like this.

12              MR. HARRIS: Okay, thank you. I'm going  
13       to turn now to Mr. Olson. Mr. Olson, please  
14       summarize your qualifications for the Committee.

15              MR. OLSON: I'm a partner at the  
16       consulting firm, Energy and Environmental  
17       Economics in San Francisco. I have over 15 years  
18       of experience in the energy industry, the last  
19       eight years with Energy and Environmental  
20       Economics, or otherwise known as E3.

21              My principal expertise is in resource  
22       planning. And while at E3 I've led a number of  
23       studies on renewable energy costs and potential,  
24       both in California and throughout the west.

25              I was the lead consultant for the



1 California Public Utilities Commission's 33  
2 Percent RPS Implementation Analysis. We studied  
3 the cost and timelines for meeting a 33 percent  
4 RPS in California.

5 I also have experience in analyzing  
6 distributed generation. My firm is known for its  
7 groundbreaking work in assessing distributed  
8 resources, such as DG and demand response, as non  
9 wireless alternatives to traditional transmission  
10 and distribution investments. And I've  
11 participated in a number of studies of distributed  
12 resources.

13 On my recommendation the CPUC's 33  
14 percent RPS analysis included a high DG case,  
15 which modeled 15,000 megawatts of small-scale  
16 solar PV scattered throughout California. And,  
17 finally, the PUC has also retained our firm to  
18 help with the renewable distributed energy  
19 collaborative, also known as RDEC, to sort of  
20 further these studies of high DG cases.

21 MR. HARRIS: Mr. Olson, what's your  
22 understanding of Mr. Powers' recommendations to  
23 the Commission?

24 MR. OLSON: My understanding is that  
25 Mr. Powers is recommending that the Commission

1 reject BrightSouceEnergy's application to  
2 construct Ivanpah on the grounds that distributed  
3 PV is a superior alternative.

4 MR. HARRIS: Is Mr. Powers asking the  
5 Commission to conclude that PV is a superior  
6 technology to the tower power technology at the  
7 Ivanpah site?

8 MR. OLSON: No, he's not. Mr. Powers'  
9 testimony addresses that the FSA's conclusions  
10 with respect to the distributed PV alternative.  
11 The FSA also looked at other solar technologies at  
12 the Ivanpah site, including solar PV. And found  
13 that those technologies don't have a substantially  
14 different impact at the site.

15 Mr. Powers doesn't take any issue with  
16 the FSA's findings with respect to other forms of  
17 solar technology at the site.

18 MR. HARRIS: Okay, I kind of want to  
19 drill down on the definitions and terminology  
20 because I think it's very important here. And  
21 specifically start looking at the idea of  
22 distributed PV versus central station renewable  
23 power.

24 So, is the entire focus of Mr. Powers'  
25 testimony on distributed PV and not on central

1 station PV, is that correct?

2 MR. OLSON: That's correct. The staff  
3 looked at PV at the Ivanpah site. That would be a  
4 central station application for PV, a 400 megawatt  
5 PV application at the Ivanpah site. Mr. Powers  
6 doesn't take any issue with the staff's  
7 conclusions with respect to the PV at the Ivanpah  
8 site.

9 He also uses the term distributed  
10 throughout his testimony. And he refers to the  
11 benefits of distributed generation, including  
12 avoided T&D losses, avoided transmission  
13 distribution investments. So it's very clear that  
14 his focus is on distributed PV.

15 MR. HARRIS: Does Mr. Powers propose a  
16 specific site for the 400 megawatts of DPV  
17 resources he says can replace Ivanpah?

18 MR. OLSON: No, he does not. Mr. Powers  
19 is asking the Commission to find that DPV,  
20 distributed PV or DPV, is a superior alternative  
21 based on the sole criterion that it's a  
22 distributed resource.

23 As I understand his testimony he's not  
24 proposing a specific alternative, he's proposing a  
25 categorical alternative. He's asking the

1 Commission to reject Ivanpah because it's the  
2 wrong category of generation, because it's in the  
3 central station category not the distributed  
4 category.

5 MR. HARRIS: So, help me understand the  
6 distinction between PV, DPV and what you call  
7 utility-scale or UPV. The other day Mr. Powers  
8 referred to this distinction as purely semantics.  
9 Is this just semantics?

10 MR. OLSON: It's absolutely not  
11 semantics. Mr. Powers has asked the Commission to  
12 reject Ivanpah on the basis of a categorical  
13 alternative.

14 If the Commission is going to seriously  
15 entertain this possibility, then they need to have  
16 a rigorous definition of what that category is,  
17 what the preferred category is. Mr. Powers has  
18 not provided such a definition.

19 So in my testimony I attempted to infer  
20 a definition of distributed PV based on his  
21 description of what his preferred alternative  
22 would look like.

23 And in doing that I tried to look for a  
24 bright line between what would be distributed PV  
25 and what would be central station or utility scale

1 PV, as I called it in my testimony.

2 The only bright line that I could find  
3 to draw was between PV that is connected to a  
4 radial distribution feeder and serving load  
5 downstream versus PV that feeds power back into  
6 the grid and serves load kind of anywhere on the  
7 grid.

8 The PV that's connected to a radial  
9 distribution feeder and serving load downstream  
10 has two potential benefits. First, it doesn't  
11 incur line losses; and second, in some cases it  
12 can help to defer or avoid transmission and  
13 distribution system investments. And Mr. Powers  
14 cites both those benefits in his testimony.

15 For all other PV projects that feed  
16 power up into the main grid, there's a number of  
17 factors that come into play when you try to think  
18 about what the optimal location would be for those  
19 projects.

20 One factor would be the potential need  
21 for transmission upgrades. The potential for  
22 different loss factors at different locations.  
23 Different insolation; different solar resources;  
24 land costs, economies of scale; what kind of  
25 technology do you have, if it's a thin film versus

1 a crystallin technology; do you have a tracking  
2 technology. All these factors would feed into a  
3 decision about what might be the optimal location,  
4 either from a developer perspective or from a  
5 utility perspective to locate PV.

6 The key point I want to make here is  
7 that the distinction between, just for example, a  
8 2 megawatt project located in a parking lot versus  
9 a 20 megawatt project located next to a substation  
10 somewhere in the central valley versus a 200  
11 megawatt project located in the Ivanpah Valley is  
12 a distinction -- this is -- the difference is of  
13 degree, not of kind.

14 MR. HARRIS: So let's talk a little bit  
15 about the potential for DPV. Is it logical to  
16 reject Ivanpah on the basis of 400 megawatts of  
17 categorical DPV alternative?

18 MR. OLSON: No, it's not. If the  
19 Commission finds that Ivanpah is not needed  
20 because of a categorical 400 megawatt DPV  
21 alternative, then there's a logical issue here  
22 because the opponents of the next central station  
23 project will use the same argument based on the  
24 same 400 megawatts of DPV potential.

25 The real issue here is that because

1       these are theoretical projects, there's no  
2       specific alternative proposed, there's no specific  
3       location for these projects, this categorical  
4       alternative, so you'd never be able to go back and  
5       determine whether or not those 400 megawatts the  
6       first time were still out there to be developed.

7               MR. HARRIS:  So are you saying that the  
8       bar has to be set higher than 400 megawatts of a  
9       categorical alternative?

10              MR. OLSON:  Yes, I think that it does.  
11       Because this finding would be so broad and have to  
12       many implications that in order to make a blanket  
13       determination that a project like Ivanpah is not  
14       needed solely because it's central station and not  
15       the distributed category, the Commission has to be  
16       able to find that it's technically and  
17       economically feasible for the state to meet all of  
18       its renewable resource needs with DPV.

19              That is, the Commission must determine  
20       that central station renewable generation is no  
21       longer necessary for California to meet its RPS  
22       and GHG goals.

23              MR. HARRIS:  From a technical  
24       perspective, to reach its aggressive RPS and  
25       greenhouse gas policy objectives, what quantity of

1       theoretical distributed PV would California need  
2       to be able to count on in order to forego  
3       completely all central station power projects like  
4       the Ivanpah project?

5               MR. OLSON:  There's been a number of  
6       different estimates out there about what  
7       California's renewable resource gap might be to  
8       reach the 33 percent RPS by 2020.  The numbers I  
9       cited in my prefiled testimony were between 59 and  
10      75 terawatt hours of renewable energy between 2007  
11      and 2020.  There's been some more recent estimates  
12      that if we do aggressive conservation, those  
13      numbers might drop maybe to the 45 to 50 terawatt  
14      hour range.

15             So if you assume a number like 45 to 50,  
16      then at a typical capacity factor of 18 percent,  
17      that works out to about say 30,000 megawatts of  
18      distributed PV.

19             MR. HARRIS:  Okay, so somewhere around  
20      30,000 megawatts of capacity of DPV to forego  
21      central stations, is that right?

22             MR. OLSON:  That's correct.

23             MR. HARRIS:  In your testimony you  
24      mentioned a number of serious and far-reaching  
25      consequences if the Commission rejects Ivanpah on



1       the sole basis that it's a central station  
2       resource. Can you walk me through some of those?

3               MR. OLSON: Well, I think the first  
4       major consequence is the chilling effect that a  
5       decision like this would have on the market for  
6       central station renewables.

7               If the Commission finds that -- rejects  
8       Ivanpah on the basis, on the sole basis that it's  
9       a central station alternative, then I would expect  
10      solar-thermal development in the state to come to  
11      an immediate halt. Because no developer would be  
12      able to get any financing from investors if  
13      they're not confident that it's possible to permit  
14      and site a solar-thermal power plant in  
15      California.

16              Second, there's some other consequences  
17      that sort of follow logically from this decision  
18      that central station generation is no longer  
19      needed. One of them is that you have to conclude  
20      that no new transmission, or at least very little  
21      new transmission, would be needed in California.  
22      So we can cease all support for transmission  
23      initiatives like RETI, like the California  
24      Transmission Planning Group.

25              And finally, there would be no more need

1       for any energy planning or siting in California.  
2       DPV would always be the preferred alternative.  
3       Again, just on the basis that it's distributed.  
4       So really the only thing that would be left for us  
5       energy planners and policymakers to do would be to  
6       figure out what the most appropriate and best  
7       mechanisms would be to procure the DPV.

8               MR. HARRIS: In your opinion, at this  
9       time, can California meet its RPS and greenhouse  
10      gas policy objectives without central station  
11      renewable projects?

12             MR. OLSON: No, it cannot. There is no  
13      evidence at this time that California can abandon  
14      central station renewable power and meet its state  
15      energy policy objectives related to GHG and RPS.

16             I would have a number of concerns with a  
17      DPV-only strategy. First, I think it's highly  
18      unlikely that enough DPV can be developed to meet  
19      the resource gap of 45 to 75 terawatt hours.

20             Secondly, and I think this is really far  
21      more important, and this is the issues that Mr.  
22      Gray identified, there's no evidence right now  
23      that the grid can accommodate that quantity of DPV  
24      while maintaining the reliability of electric  
25      service that's critical to a modern economy. This

1 just really has not been studied.

2 Thirdly, while the recent price drops  
3 for PV is exciting, there's not enough data on  
4 actual PV costs at this time to determine the  
5 long-term price frame with any degree of  
6 certainty, and hence, the effect on utility  
7 ratepayers.

8 And fourth, even assuming aggressive  
9 pricing PV panels, my testimony shows that DPV is  
10 still really heavily dependent on federal tax  
11 subsidies to be cost effective.

12 MR. HARRIS: So, let's talk about the  
13 potential for, in California, in the near term. I  
14 want to ask you about the near-term potential,  
15 again or DPV, or for distributed PV in California.

16 Mr. Powers cites several different  
17 estimates in his testimony between 20,000  
18 megawatts and 60,000 megawatts of potential to  
19 develop rooftop PV in California.

20 Can you help me understand what those  
21 numbers mean, please?

22 MR. OLSON: Yeah, Mr. Powers cites a  
23 Navigant Consulting study that was conducted for  
24 the Commission in 2007. So that study came up  
25 with a number of 68,000 megawatts of potential to

1 develop rooftop PV in California.

2 I think the important thing for the  
3 Commission to understand about that number is that  
4 this is technical potential. This is the most  
5 that you could possibly imagine developing  
6 assuming that there's no economic or market  
7 factors.

8 And the way they calculated that number  
9 was simply to estimate roof area; apply a number  
10 of filters for things like shading and structural  
11 adequacy, the orientation of the roof. And  
12 assuming that you can put PV on all of the  
13 remaining roof space.

14 There any number of economic and market  
15 barriers that reduce the amount of penetration  
16 that one could reasonably expect to obtain. The  
17 biggest one is, frankly, that the utilities simply  
18 don't own the roofs. You can't just go out there  
19 and put PV on all these roofs. These roofs are  
20 owned by other people.

21 This really is a case where, you know,  
22 because of the types of entities that are involved  
23 you have to treat this much more like an  
24 efficiency type of a program, rather than like a  
25 utility procurement type of a program.

1                   And the difference between technical  
2           potential to achieve efficiency and economic  
3           potential to achieve efficiency and market  
4           potential to achieve efficiency is pretty vast.  
5           There are all kinds of barriers that prevent you  
6           from achieving what technically your studies tell  
7           you that you can achieve.

8                   MR. HARRIS:   So let's talk about what  
9           might be more realistic.   So, in your professional  
10          opinion, what would be a more realistic estimate?

11                  MR. OLSON:   My firm looked at this  
12          issue, teaming up with Black and Veatch, as part  
13          of the CPUC study.   We sort of took another  
14          approach to just technical potential issue.   And  
15          one of the technical barriers that the Navigant  
16          study didn't address was the ability of the  
17          distribution system to accommodate installations  
18          of distributed generation.

19                  So there's a thing called rule 21, which  
20          states that you can't -- it's a PUC rule which  
21          states that you can't interconnect distributed  
22          generation that cumulatively is greater than 15  
23          percent of the peak loading on a distribution  
24          feeder or substation bank.

25                  And that rule is in place to protect,

1       because the distribution system isn't designed to  
2       accommodate upward flow from a radial distribution  
3       feeder back up into the main grid. And so that 15  
4       percent level, it's a conservative estimate of the  
5       most that you can put on without ever having power  
6       flow back up onto the grid.

7               So we sort of took an approach similar  
8       to Navigant's in terms of estimating the amount of  
9       available roofs. But then we obtained data from  
10      the utilities on the peak loadings of distribution  
11      system elements, either feeders or substation  
12      banks.

13             And we collated those two estimates,  
14      rooftops and peak loadings on feeders. And we  
15      took rule 21 and relaxed that assumption from 15  
16      percent of peak loading to 30 peak loading. Just  
17      because PV tends to produce during the daytime  
18      when loads tend to be higher. And so as a  
19      planning exercise it seemed reasonable to relax  
20      that assumption when thinking about how much DPV  
21      you could actually connect.

22             So we went feeder by feeder potential  
23      distribution system to accommodate the power  
24      potential of rooftops. We took the lower of the  
25      two. We ended up with 6000 megawatts of DPV --

1 well, we ended up with about 20,000 megawatts of  
2 sort of technical potential DPV, which would be  
3 like the Navigant number, with one more filter  
4 that they didn't apply, which is this distribution  
5 system filter.

6 And then we made what I think is a  
7 generous assumption that a third of those roofs  
8 would actually be developed. So going from  
9 technical potential to economic or market  
10 potential, that you'd actually get 6000 megawatts  
11 of DPV. And even that 6000 megawatt number was  
12 contested by the IOUs as being too aggressive.

13 And I want to also note that when I  
14 looked at the Navigant study in more detail, the  
15 Navigant study that Mr. Powers cites has that  
16 68,000 megawatt number for technical potential.  
17 When they applied their economic filter to that  
18 number, they ended up with, under their most  
19 aggressive case 4384 megawatts of economic  
20 potential for rooftop PV in 2016.

21 And this is the most optimistic, meaning  
22 with very aggressive PV panel pricing of 250 to  
23 270 per watt installed; wit some aggressive  
24 assumptions about incentive programs that are out  
25 there, and what they called new business. It's

1       their most aggressive case.

2               MR. HARRIS:  So, based on those numbers  
3       there's only about 6000 megawatts of distributed  
4       PV potential in California, is that about right?

5               MR. OLSON:  6000 megawatts of  
6       distributed PV potential, that's correct.  Now,  
7       that doesn't mean that there's not -- there's 6000  
8       megawatts of PV potential in California.  There's  
9       vast amounts of PV potential in California.

10              But only 6000 megawatts of that could be  
11      connected, or would be expected to be connected  
12      under the most optimistic assumptions, on a  
13      distributed basis where the power never flows back  
14      up into the transmission system.

15              An important thing to remember is that  
16      once the energy starts to flow back up from the  
17      distribution feeders into the transmission system,  
18      then it stops deferring distribution system  
19      investments.  It stops avoiding distribution  
20      system losses because now the power has to flow  
21      all the way back up to the main distribution  
22      system and then back out on another distribution  
23      system and feeder.  And so the gain in terms of  
24      losses is much less.

25              And it begins to require incremental



1 investment because the existing distribution  
2 system wasn't designed to accommodate these upward  
3 flows. And so you have to go and think about how  
4 to re-engineer the distribution system to  
5 accommodate this. And that's another thing that  
6 just simply hasn't been studied. We don't know  
7 what that might cost to re-engineer the  
8 distribution systems throughout California to  
9 accommodate more than roughly this 6000 megawatts  
10 of distributed PV.

11 MR. HARRIS: Okay, let's now focus on  
12 cost and kind of wrap it up on cost, if we can.  
13 So, turning to cost, Mr. Powers also makes a  
14 number of claims about DPV being lower cost than  
15 utility PV.

16 Does he provide convincing evidence, in  
17 your opinion, that distributed systems are less  
18 costly than the larger centrally located systems?

19 MR. OLSON: No, he does not. Mr. Powers  
20 provides no evidence at all about the cost and  
21 performance of specific PV installations at  
22 different locations.

23 While the distributed systems have the  
24 T&D benefits I mentioned before, the solar  
25 resources have a substantially lower quality at

1 the load centers in California. I provided some  
2 estimates in my testimony of 13 to 16 percent.

3 I want to clarify that those estimates  
4 are for standard 20-megawatt, ground-mounted  
5 installations at these various different  
6 locations. So, it's very standardized; represents  
7 only the raw difference in insolation.

8 Now, if I were to take a rooftop project  
9 in Sacramento and compare it with either a zero-  
10 degree tilt or 10-degree tilt, and compare it to a  
11 ground-mounted system at a place like Daggett with  
12 a 30-degree tilt, that difference would be  
13 significantly larger.

14 Mr. Powers also asserts that rooftop  
15 systems should be cheaper to construct, but again  
16 provides no evidence to back up this assertion.  
17 In fact, in my experience, the opposite is likely  
18 to be true. There are a lot of complexities with  
19 rooftop systems. You have to design and engineer  
20 a system according to the size, the structural  
21 integrity of the roof.

22 So, when we looked at this for the CPUC  
23 study, based on some data that we obtained from  
24 the PUC on CSI projects -- or California Solar  
25 Initiative projects, we applied an 8 percent

1 premium for large roofs and 21 percent premium for  
2 small roofs relative to a ground-mounted system.

3 And when you combine that with the  
4 performance hit, due to the insolation  
5 differences, we ended up with a cost delta of  
6 about \$50 per megawatt hour premium for large  
7 roofs in the urban areas, and an \$80 per megawatt  
8 hour premium for small roofs in the urban areas.  
9 This would be relative to a ground-mounted system  
10 at an optimal location like Daggett.

11 MR. HARRIS: You have a chart in your  
12 testimony that shows the average price of  
13 installed PV at about \$8 per watt.

14 MR. RATLIFF: Excuse me, just -- could I  
15 just ask, I thought that last point was important,  
16 but I didn't -- it was so quick I didn't quite  
17 understand it. Could you reiterate that, again?  
18 I'm sorry, I didn't --

19 MR. HARRIS: The point about the 33  
20 percent implementation analysis, and 80 percent  
21 for roofs? Is that -- the last thing --

22 MR. RATLIFF: Yeah, last --

23 MR. HARRIS: -- he said?

24 MR. RATLIFF: -- the last two  
25 paragraphs.

1                   MR. GRAY: Yes, so as part of our CPUC  
2                   study for the 33 percent implementation analysis,  
3                   we obtained data from the PUC on the cost of  
4                   installations under the California Solar  
5                   Initiative for different -- of different types.

6                   And from that data we calculated a cost  
7                   premium of 8 percent for large rooftops and 21  
8                   percent for small rooftops relative to a ground-  
9                   mounted system.

10                  So, the system is more expensive to  
11                  construct and install. If it's located in an  
12                  urban area, it also has lower quality insolation.  
13                  So when you combine those two factors, the higher  
14                  install cost and the lower isolation, we ended up  
15                  with about a \$50 per megawatt hour premium for  
16                  large rooftops relative to remote ground-mounted  
17                  sites. A \$50 per megawatt hour premium for large  
18                  roofs and an \$80 per megawatt hour premium for  
19                  small roofs.

20                  MR. RATLIFF: Thank you.

21                  MR. HARRIS: You got a chart in your  
22                  testimony that shows the average price of  
23                  installed PV at about \$8 per watt. When was this  
24                  report published?

25                  MR. OLSON: The chart is from the

1 Lawrence Berkeley National Laboratory's Tracking  
2 The Sun II report, which was published in October  
3 of 2009. And this price point, by the way it's  
4 for installations that took place in calendar year  
5 2008.

6 MR. HARRIS: As far as you're aware, is  
7 this the most recent major publication on PV  
8 costs?

9 MR. OLSON: As far as I'm aware, this is  
10 the most recent, publicly available, comprehensive  
11 report on the costs of actual PV installations.

12 MR. HARRIS: Just a few more questions.  
13 I'm sorry. Have PV prices come down in 2009?

14 MR. OLSON: Yes, there's anecdotal  
15 evidence that PV prices have come down in 2009.  
16 But, as of yet, there's very little public data  
17 that shows the effect of these reduced panel  
18 prices on actual PV installations.

19 Mr. Powers' testimony cites planning  
20 assumptions, but does not reference any actual PV  
21 installations.

22 And at this time I think it's fair to  
23 say that there's a lot of uncertainty about what  
24 the long-term trend might be, whether this 2009  
25 price drop results from a temporary over-supply or

1       whether it really is a long-term trend.

2               MR. HARRIS: I think maybe this is my  
3       last question. In your expert opinion should  
4       California be relying on anecdotal evidence of  
5       lower PV prices in 2009 in making its energy  
6       planning decisions?

7               MR. OLSON: Well, I'd be very hesitant  
8       to draw any long-term conclusions based on 2009  
9       economic data. I think you might come to some  
10      very odd conclusions looking purely at 2009, given  
11      what a weird year it's been.

12              From the perspective of PV, in my  
13      opinion it's too soon for us to change all our  
14      planning assumptions on the basis of anecdotal  
15      evidence of PV prices that looked really quite a  
16      bit different from what they just one year ago.

17              If prices below \$4 a watt are real, in  
18      the long term, then we should start to see these  
19      prices show up in filings, in estimates of the  
20      cost of real PV installations in the next couple  
21      years.

22              And I think at that point it would be a  
23      good time to go back and reassess what do prices  
24      at that level mean for California's long-term  
25      energy planning. At this time it's really too

1 soon to do that.

2 And in the meantime I think it's really  
3 critical to continue the process of planning for  
4 developing central station renewable resources if  
5 we're going to have any hope of meeting our  
6 aggressive, very aggressive GHG and RPS goals by  
7 2020.

8 MR. HARRIS: Thank you, Mr. Olson. I  
9 think at this point we'll stop and -- we'll stop.

10 HEARING OFFICER KRAMER: Mr. Ratliff,  
11 did you want to ask a few questions of Ms. Lee?

12 MR. RATLIFF: Of Ms. Lee?

13 HEARING OFFICER KRAMER: Yes.

14 MR. RATLIFF: Okay, and we'll go back at  
15 some point to this discussion, perhaps?

16 HEARING OFFICER KRAMER: Yes, I just  
17 want to, before we open it up for the --

18 MR. RATLIFF: Right.

19 HEARING OFFICER KRAMER: -- sort of  
20 free-form panel, I wanted to let -- both of you  
21 requested to ask your specific questions of your  
22 witnesses.

23 MR. RATLIFF: So we're changing gears  
24 here back to the --

25 MS. BELENKY: And I'm sorry, I don't

1       want to interrupt the process, but a lot of this  
2       is directed specifically at Mr. Powers' testimony.  
3       And if it would be -- I think it might be clearer  
4       to do that next. But if you would like to do --  
5       it seems like we're changing up what we're doing  
6       in the middle, and I'm a little confused.

7                 We did this panel. I thought we were  
8       going to be able to question this panel.

9                 HEARING OFFICER KRAMER: No, you are  
10       going to be able to. We're just -- what we're  
11       trying to get to is the sort of free-form back-  
12       and-forth discussion. But --

13                MR. RATLIFF: We're fine with that. It  
14       does scramble a little bit, but we can go back to  
15       the --

16                HEARING OFFICER KRAMER: Are you going  
17       to want to ask specific questions of her then at  
18       some later point?

19                MR. RATLIFF: Of whom?

20                HEARING OFFICER KRAMER: Of Ms. Lee, at  
21       some later point or --

22                MR. RATLIFF: I can do it whenever you  
23       want me to. I mean we can -- if you want to  
24       continue this, that's fine with me. If you want  
25       to go ahead and have Ms. Lee finish her testimony,



1       then we can do that in about ten minutes.

2                   HEARING OFFICER KRAMER:   Well, okay.

3       Let's, then, try to finish the discussion of the  
4       distributed PV and Mr. Powers' and Mr. Olson's and  
5       Mr. Gray's, to an extent, issues.

6                   And then we'll go back and have the  
7       specific questions of Ms. Lee. And then we'll  
8       talk about whatever we want to talk about with  
9       regard to alternatives to keep the flow going.

10                  MR. HARRIS:   Okay. The rest of my  
11       panel's going to feel -- but they're probably  
12       happy not to have to answer questions. So,  
13       whatever your preference is. I thought Ms. Lee  
14       was going to do a brief presentation, and then we  
15       were going to bring everybody up. Allow these  
16       guys to do cross, and then do our free-form  
17       questioning. But however the Commission wants to  
18       proceed, buy my guys are ready to go.

19                  HEARING OFFICER KRAMER:   Okay, we  
20       decided to go back to -- so, Mr. Ratliff, go ahead  
21       and -- I gather you just have a few questions for  
22       Ms. Lee, is that correct?

23                  MR. RATLIFF:   Yes.

24                  HEARING OFFICER KRAMER:   Okay, go ahead.  
25       That might take ten minutes at the most. Take the

1 time you need. And then we'll just open it up and  
2 everyone will be able to discuss. We'll try to  
3 focus on a particular topic as we go around and  
4 not jump all over the map. But, it will be in the  
5 more free-form format at that point.

6 So, Mr. Ratliff, go ahead.

7 MR. RATLIFF: Yes, just to get us back  
8 to the context. Late, the night before last, Ms.  
9 Lee was giving her direct testimony, and because  
10 of the hour and because of the somewhat ill-fated  
11 attempt to turn it into an informal hearing, I  
12 think large parts of her testimony were not  
13 actually addressed.

14 And so we wanted to finish rounding out  
15 the parts that were never discussed a little bit.  
16 And for that reason I was going to ask her a few  
17 questions to allow her to get through that  
18 testimony fully.

19 DIRECT EXAMINATION - Continued

20 BY MR. RATLIFF:

21 Q Ms. Lee, the first question I would have  
22 for you is could you explain why you suggest  
23 reconsideration of the reduced-acreage alternative  
24 in your rebuttal testimony?

25 MS. LEE: Yeah, just as a reminder of

1       where I ended up in the testimony on Tuesday  
2       night, the conclusion of the FSA was that there  
3       were no alternatives that met CEQA's three tests  
4       that should be carried forward for full  
5       examination.

6               But this changed, in fact, after the  
7       filing of the FSA because of the information  
8       provided by the applicant in describing how it  
9       would comply with condition of certification bio-  
10      18.

11             So in the rebuttal testimony we  
12      explained that reduced-acreage alternative, which  
13      was put on the table in the FSA, but eliminated in  
14      favor of bio-18, that decision was made because  
15      bio-18 was felt to have the potential to be an  
16      effective measure to prevent the significant  
17      impacts to rare plants.

18             But when we received the information  
19      from the applicant describing how they proposed to  
20      implement that measure, it was staff's opinion  
21      that, in fact, bio-18 could not be implemented in  
22      a way that could reduce the significant impacts to  
23      rare plants, special status plants.

24             And we believed strongly that the  
25      reduced-acreage alternative, which would designate

1       certain areas within the proposed project  
2       boundaries as no-disturbance areas entirely, is  
3       what needs to be the conclusion of the  
4       alternatives findings.

5               MR. RATLIFF:  Is the reduced-acreage  
6       alternative within the footprint of the existing  
7       project?

8               MS. LEE:  It is entirely within that  
9       footprint, yes.

10              MR. RATLIFF:  And that footprint has  
11       been analyzed for all the technical areas?

12              MS. LEE:  Yes.

13              MR. RATLIFF:  So, is it your  
14       understanding then the Energy Commission would be  
15       able to consider implementing this alternative --

16              MS. LEE:  Yes.

17              MR. RATLIFF:  -- within this proceeding?

18              MS. LEE:  Yes.

19              MR. RATLIFF:  What would the reduced-  
20       acreage alternative look like, or what might it  
21       look like?

22              MS. LEE:  The basis of the reduced-  
23       acreage alternative starts with the figure,  
24       biological resources figure 2, which identifies  
25       the concentrations of rare plants.

1                   This was also the basis for condition of  
2                   certification bio-18. So in that configuration  
3                   Ivanpah 1 and Ivanpah 3, which are the two  
4                   segments of the project with the most intense  
5                   plant resources in particular, would be smaller.  
6                   Basically the northern or northwestern portions of  
7                   each of those areas would be eliminated from any  
8                   kind of development.

9                   MR. RATLIFF: Would the reduced-acreage  
10                  alternative result in a reduction of generation  
11                  capacity?

12                  MS. LEE: Yes, it would. Our proposal  
13                  is, in fact, that there would be no heliostats  
14                  allowed in those areas at all. And the boundaries  
15                  of the project would, in fact, be made smaller.

16                  MR. RATLIFF: Are there any other areas  
17                  proximate to the project such as near I-15 that  
18                  could be used potentially to try to make up for  
19                  some of that generation, were they also approved?

20                  MS. LEE: Yes, there are. This was the  
21                  subject of at least some discussion on Tuesday  
22                  night, that our findings of the evaluation of the  
23                  I-15 alternative are that there are areas adjacent  
24                  to Ivanpah 1, both east and south of Ivanpah 1,  
25                  that are within the alternatives suggested by the

1 Sierra Club in which the applicant could, in some  
2 future proceeding, expand into those areas to  
3 regain some generation capacity lost by the  
4 protection of the plants.

5 MR. RATLIFF: Have you identified at  
6 least part of those areas in your rebuttal  
7 testimony?

8 MS. LEE: We have, yes, in the reference  
9 to biological resources figure 2, which is also a  
10 reference to the -- referred to in the rebuttal  
11 testimony figures.

12 MR. RATLIFF: I'm really asking you a  
13 question that I should probably be asking myself,  
14 but is it your understanding that such outside  
15 footprint alternatives could be approved within  
16 the boundaries of this proceeding?

17 MS. LEE: I don't believe that could be  
18 approved within this proceeding. I think what  
19 could happen is that this proceeding can evaluate  
20 anything within the footprint of the proposed  
21 project in a smaller scale.

22 And then in a separate proceeding, or  
23 perhaps an amendment to this proceeding, and that  
24 would be a Commission issue to work, areas outside  
25 of the footprint could be considered.

1                   This is similar to BLM's situation. The  
2                   reason those areas can't be considered now, I  
3                   believe, is that we don't have the full extent of  
4                   biological surveys and cultural resources surveys  
5                   outside of this project footprint. And those  
6                   really would be required in order for us to make  
7                   suer that expanding into those areas really is  
8                   logical. But our preliminary habitat assessment  
9                   definitely shows that that appears to be the case.

10                  MR. RATLIFF: What would be the benefit  
11                  of a reduced-acreage alternative from a biological  
12                  standpoint?

13                  MS. LEE: The biggest benefit -- there  
14                  are two benefits. The biggest one is the  
15                  potential elimination of a significant impact on  
16                  rare plants.

17                  The second one is by reducing that  
18                  acreage, which is all within the areas of high  
19                  value desert tortoise habitat, the effect on  
20                  desert tortoise would also be reduced  
21                  substantially.

22                  MR. RATLIFF: I have no other questions.

23                  HEARING OFFICER KRAMER: Okay. Let's  
24                  open up -- to be clear, let's see, the panel  
25                  includes Mr. Anderson on the phone, Mr. Powers,

1 Ms. Lee, with five applicant witnesses who are at  
2 the table --

3 MS. SMITH: Mr. Cashen.

4 HEARING OFFICER KRAMER: -- Mr. Cashen.  
5 So he could -- your microphone --

6 MR. RATLIFF: We have Ms. Chainey-Davis  
7 also on the phone --

8 HEARING OFFICER KRAMER: Oh, yeah, Ms.  
9 Chainey-Davis.

10 MR. RATLIFF: -- along with Mr.  
11 Anderson.

12 HEARING OFFICER KRAMER: Okay.

13 MR. RATLIFF: And we have Dr. Sanders  
14 here, as well.

15 HEARING OFFICER KRAMER: Okay. So you  
16 have room for Mr. Cashen over there, or --

17 MS. BELENKY: I think so.

18 (Parties speaking simultaneously.)

19 HEARING OFFICER KRAMER: Okay, so it  
20 sounded like there was great interest in  
21 continuing on the theme of the distributed PV.  
22 The folks, Mr. Powers, Mr. Olson and Mr. Gray.

23 Ms. Belenky, did you have some questions  
24 about that that you wanted to get it all started?  
25 Basically what we're doing here is what we did



1        seem to be doing last night pretty happily, which  
2        is sometimes the representatives or the attorneys  
3        are asking questions of the panel. Sometimes the  
4        panel members start to engage in a dialogue among  
5        themselves. All of that's perfectly appropriate.

6                We only ask that you try to handle one  
7        or two related themes at a time, and not jump all  
8        over the map. Because the purpose of this is to  
9        get a discussion where it's much easier to  
10       appreciate all the arguments and the counter-  
11       arguments, because they're made one after the  
12       other, rather than, you know, ten pages away from  
13       each, from the point of the transcript that would  
14       result in a normal way of conducting the formal  
15       hearing.

16               MS. SMITH: Mr. Kramer, would you just  
17       make a small point. Maybe this is even a  
18       question. Something that Mr. Ratliff said on  
19       Tuesday night regarding having the lawyers  
20       involved, you know, messes things up. And I  
21       understood the point.

22               The Sierra Club finds itself in a little  
23       different position here, especially with respect  
24       to the alternative proposal that we submitted back  
25       in June.

1                   I am a lawyer, but I'm also one of the  
2                   principals in the Clean Energy Solutions Campaign  
3                   for the Sierra Club. And I was involved in  
4                   drafting the Sierra Club alternative.

5                   And so, you know, I'm not just here  
6                   representing a Sierra Club as a hired gun. I'm  
7                   sort of the client and the lawyer at the same  
8                   time.

9                   And it was a little awkward to have Mr.  
10                  Cashen answer sort of process questions and  
11                  background questions on the Sierra Club  
12                  alternative. We actually hired him to evaluate  
13                  that proposal. But he has no knowledge of sort of  
14                  how it was crafted, and sort of the point of it.  
15                  He's just, you know, in some respects he's kind of  
16                  the hired gun just to sort of assess the thing.

17                  So, you know, I don't know where that  
18                  puts us, but if this is a free-flowing  
19                  conversation and people do want to know what the  
20                  spirit is and the intent of the alternative, then  
21                  I think I would be in a better position to answer  
22                  that question. Or even Sid Sullivan, who I hope  
23                  is still on the phone.

24                  MR. HARRIS: You might suspect that I  
25                  would object to that. The Sierra Club had the

1 opportunity to file prefiled testimony on exactly  
2 where their alternative was. Their witnesses said  
3 that they didn't even provide a map.

4 And part of my painful night of  
5 discussions with Mr. Cashen was, and staff, was  
6 exactly that. They have not presented a feasible  
7 alternative. The Sierra Club alternative exists  
8 only in concept. And there is no map.

9 And as a legal matter, it's infeasible.  
10 And that record is closed. Ms. Smith is not  
11 identified as a witness. And I object to the  
12 attempt to now cure a defect, an infeasible  
13 alternative, by adding new information on that  
14 alternative in the record through oral testimony  
15 of counsel.

16 HEARING OFFICER KRAMER: Ms. Smith.

17 MS. SMITH: That's certainly not my  
18 intention. I mean I'm not trying to start a  
19 pitched battle here. I just thought, because this  
20 was going to be more free-form, if there was any  
21 questions about what it was that the Sierra Club  
22 intended to do, I was available to answer that  
23 question.

24 MR. RATLIFF: I thought --

25 MS. SMITH: This is ridiculous.

1                   MR. RATLIFF: I thought Ms. Smith's  
2                   question was a question of -- an interesting  
3                   question of what is the role of lawyers in an  
4                   informal hearing situation like this where  
5                   presumably we aren't experts and we don't know the  
6                   answers.

7                   HEARING OFFICER KRAMER: Well, that --

8                   MR. RATLIFF: And I think she's saying  
9                   that, in part, she was a person who perhaps of  
10                  necessity -- privy to the answer.

11                  HEARING OFFICER KRAMER: Well, had she  
12                  been identified as a witness I think then she  
13                  could offer factual testimony.

14                  The goal here is to reduce the barrier  
15                  that everything has to be elicited by a question  
16                  from a lawyer to a witness. And to the extent she  
17                  can make her points by asking questions, she's  
18                  free to do that today.

19                  But Mr. Harris has objected to her all  
20                  of a sudden becoming a witness without notice.  
21                  And I think we will not allow that.

22                  So, within those confines, she may be  
23                  able to offer some of her points.

24                  So, Ms. Belenky?

25                  MS. BELENKY: Yes, I beg the indulgence

1 of the Commission, because Mr. Powers is on the  
2 phone it might be a little confusing to know who's  
3 speaking, and for the free-flow. And I believe  
4 there's at least one other person on the phone.

5 So, if we could, as you suggested, focus  
6 on one or two issues at a time, because we have a  
7 range of alternatives that's quite broad, that we  
8 want to discuss, some of which are more onsite  
9 alternatives, as the staff has just raised, some  
10 alternatives within the footprint; alternatives in  
11 other areas. And then we have the PV and other  
12 issues.

13 So if we could somehow focus, I think  
14 that would very much help.

15 HEARING OFFICER KRAMER: Yeah, that's my  
16 suggestion, that you get the ball rolling by  
17 talking about the PV issues.

18 For the folks on the phone, panel  
19 members, when you speak just say your name again  
20 so that they know who's speaking.

21 So, Ms. Belenky, go ahead and fire the  
22 first questions.

23 EXAMINATION

24 MS. BELENKY: The first question. Well,  
25 I do just have a quick question for Mr. Olson,

1       because I wasn't -- at the beginning of your  
2       testimony you acknowledge that Mr. Powers brought  
3       this alternative forward regarding this specific  
4       project. And whether there would be 400 megawatts  
5       of PV that could be substituted for this project  
6       as an alternative.

7               And part of this is a timing question, I  
8       think. But then later in your testimony you  
9       discuss whether all distributed PV could  
10      substitute for all concentrated solar.

11             And I just want to make suer that we're  
12      all on the same page. Is it your testimony that  
13      the grid, at this time, cannot accommodate 400  
14      megawatts of distributed PV?

15             MR. OLSON: No, it's not.

16             MS. BELENKY: Thank you. And then I'd  
17      like to give Mr. Powers an opportunity to raise  
18      some of the issues that were directly addressed to  
19      his testimony. Are you there, Bill?

20             MR. POWERS: Yes.

21             MS. BELENKY: Okay, because he's far  
22      more knowledgeable than I am, I'm going to step  
23      out and let it go.

24             MR. HARRIS: Is the witness now the  
25      counsel for CBD. The line's been blurred for me

1       between what's --

2               MR. SPEAKER:  It's an informal panel.

3               MS. BELENKY:  It's an informal panel.

4               HEARING OFFICER KRAMER:  Yeah, these  
5       panelists are allowed to ask questions of each  
6       other, so --

7               MR. HARRIS:  Okay, so we're in the  
8       informal phase now then?

9               HEARING OFFICER KRAMER:  Right, yes.

10              MR. HARRIS:  Okay, fine.  Thank you.  I  
11       clearly need more coffee --

12              HEARING OFFICER KRAMER:  She was just  
13       asking -- no, in fact, we need to control your  
14       coffee.

15              (Laughter.)

16              MR. HARRIS:  You and my wife would make  
17       a committee of two on that, at least, I'm sure.

18              MS. BELENKY:  I just wanted to clarify.  
19       I have other questions but I believe that it may  
20       be more interesting and bring out the issues  
21       better to have Mr. Powers discuss them directly,  
22       since he is far more knowledgeable than I am on  
23       these issues.

24              HEARING OFFICER KRAMER:  I agree that  
25       probably (inaudible).  Mr. Powers, go ahead.

1                   MR. POWERS: I think I'll -- these are  
2 all related, and I think I'll start with, this  
3 question is directed at Mr. Olson.

4                   You had mentioned that you had  
5 calculated that the delta between the cost per  
6 megawatt hour of -- PV and utility, excuse me,  
7 utility -- PV was \$50 a megawatt hour to \$80 a  
8 megawatt hour. I don't recall seeing that in your  
9 rebuttal testimony. I just wonder if it was in  
10 your rebuttal testimony.

11                  MR. OLSON: The building blocks of those  
12 calculations were in my rebuttal testimony. This  
13 gets to this issue of what's the installed cost  
14 delta between a rooftop PV and ground-mounted PV,  
15 and what is the difference in their insolation,  
16 the solar resource between PV installations in  
17 urban areas and PV installations in desert, better  
18 solar resource areas.

19                  MR. POWERS: Well, I want to go back to  
20 your rebuttal testimony because on page A-17 the  
21 statement is the CPUC's 33 percent RPS  
22 implementation analysis implied a cost premium  
23 about 21 percent of PV mounted on small rooftops,  
24 8 percent on large rooftops relative to ground-  
25 mounted utility-scale PV.



1                   And so what I see in testimony is you're  
2                   saying that (inaudible) premium. And if were to  
3                   take, let's take the CPUC, in fact this is in your  
4                   report you authored, that the sensitivity analysis  
5                   used in that report for -- PV is \$168 a megawatt  
6                   hour.

7                   And when I run the calculation, 8  
8                   percent of that is about \$13 a megawatt hour, not  
9                   58. So if you could help me understand the 58 to  
10                  8 that would probably be helpful.

11                  MR. OLSON: Um-hum. Yeah. The 8  
12                  percent cost premium for large roofs is, that's a  
13                  cost premium on the installed cost of the system.  
14                  So this is if you have a ground-mounted system  
15                  versus if you have a roof-mounted system in the  
16                  same location, just by virtue of the fact that the  
17                  roof-mounted system, it's on the roof. You have  
18                  issues with rooftop access, have issues with  
19                  cranes, you have issues with staging because it's  
20                  an urban area, and it's simply going to cost you  
21                  more to install that PV panel on top of a roof.

22                  So if these two projects are side by  
23                  side, a rooftop system right next door to a  
24                  ground-mounted system, the cost premium would be 8  
25                  percent for the roof-mounted system just on the

1       install cost. And so the cost premium on a  
2       dollar-per-megawatt-hour basis delivered would  
3       also be 8 percent.

4               What our study, the CPUC study, looked  
5       at was the difference between a remote ground-  
6       mounted system and a rooftop system located in a  
7       load center in California. And so there's another  
8       difference in those two systems. And that's the  
9       difference in the quality of the solar resource.

10              And I did have some evidence in my  
11       prefiled about what exactly those differences  
12       might amount to, and I think they were on the  
13       order of 13 to 16 percent difference between a  
14       desert location like Daggett and a load center  
15       location like San Francisco or Sacramento or Los  
16       Angeles.

17              And so if you combined those  
18       differences, if you combine the fact that it costs  
19       you more for building on the roof with the fact  
20       that the quality of the solar resource is much  
21       less in an urban area than it is in the desert,  
22       then that's how you get to the \$50 per megawatt  
23       hour premium for these large rooftops.

24              And by the way, just so that's clear, I  
25       calculated that number using the CPUC RPS

1 calculator under the low-cost solar case. And so  
2 I did start with that \$168 per megawatt hour cost.

3 So if you take that \$168, that's  
4 essentially -- in Daggett, that's essentially a  
5 ground-mounted system in the desert. And you get  
6 to something like \$220 per megawatt hour in an  
7 urban area on a large rooftop; and something like  
8 \$250 per megawatt hour on a small rooftop in an  
9 urban area.

10 MR. POWERS: Well, if I could interject,  
11 that's a very comprehensive answer and I  
12 appreciate that.

13 Getting back to this issue, I want to  
14 very succinctly say that did give testimony on  
15 this a couple of days ago, that my position is  
16 that the transmission losses that are incurred by  
17 putting a PV facility out in the desert  
18 essentially negate the lower insolation in your  
19 report. But I want you to hear that from me, as  
20 well.

21 But the other point I want to make is  
22 that I didn't see anything in rebuttal, when I put  
23 an explicit number in testimony, that SCE is  
24 projecting, they're now ratebasing their 500  
25 megawatt project in the L.A. Basin on this cost.

1       That their installed cost or their installation  
2       cost will be 60 cents, or actually 61 cents, a lot  
3       on this project.

4               The reason for that, and the  
5       Commissioners should be clear on this, because  
6       they are attaching thin film PV panels with that,  
7       no penetrations, not a single hole drilled in the  
8       roof. And what has to be the simplest  
9       installation protocol you could imagine for a  
10      power plant.

11             And we should also keep in mind, and  
12      this is must blatant common sense, if you have to  
13      put in a post and a foundation and a rack, and put  
14      panels on it in the desert, you have expenses you  
15      do not have on a building.

16             And so the point that I want to make is  
17      that my testimony does include substantiation,  
18      which has come from a approved, rate-based, urban  
19      PV project that is approved by the PUC, with an  
20      explicit very low cost for installation.

21             Moving on to probably a more critical  
22      point, --

23             MR. HARRIS: Arne, do you want to  
24      respond to that before we move on?

25             MR. OLSON: Yeah, I would like to ask

1 Mr. Powers a question along those lines, as well.  
2 If that's allowed under the rules?

3 Mr. Powers, the Southern California  
4 Edison numbers that you quoted, do you know are  
5 those from actual installations? Have they gone  
6 out and actually purchased the panels, installed  
7 those projects on rooftops, rolled up the costs  
8 and filed those costs with the Commission in a  
9 public proceeding?

10 MR. POWERS: They have. That is  
11 what -- the project was approved on June 18, 2009,  
12 by the full Commission. And that includes  
13 explicit costs for each element in the  
14 installation of the facility. They have a line-  
15 by-line cost estimate that includes their  
16 installation cost. That installation cost is  
17 identified as 61 cents a watt DC for those  
18 facilities. So, yes.

19 MR. OLSON: Well, with all due respect,  
20 my understanding of those numbers is that those  
21 are planning estimates. Those are estimates that  
22 Edison's filed with the CPUC to get approval to  
23 move forward with this project of looking to  
24 install 500 megawatts of urban PV.

25 But they're not actual cost estimates

1 from actual projects that have been installed on  
2 roofs that they're now applying to be incorporated  
3 into rates.

4 MR. POWERS: Mr. Olson, upon what basis  
5 did SCE develop the cost estimates? By going to  
6 the vendor and looking at facilities that that  
7 vendor is putting in, and developing costs that  
8 they thought they could live with.

9 There are numerous installations using  
10 the exact same technology that are both rooftop  
11 and ground-mounted, upon which to base those  
12 costs.

13 I attend solar conferences on a routine  
14 basis where the vendors, including, first of all,  
15 that present case studies of what their actual  
16 costs were doing these projects.

17 There is a voluminous database on what  
18 these costs are expected to be, based on real  
19 installations.

20 MR. OLSON: Again, the point I want to  
21 make here is that these are estimates, these  
22 aren't filed costs. These aren't actual PV  
23 projects that were installed where we know what  
24 they actually cost.

25 There's all kind of things that can go

1       wrong between the estimate stage and the  
2       construction stage to the rate.

3               MR. POWERS: Well, that's fine. I  
4       accept your going on record with that statement.

5               MR. RATLIFF: If there's any space --

6               MR. POWERS: I have more questions --

7               MR. RATLIFF: If there's any verbal  
8       space I'd like to ask a question, too. Is that  
9       okay, Mr. Powers, if I -- this is Dick Ratliff --  
10      if I ask a question, too?

11              MR. POWERS: Oh, yes, yes.

12              MR. RATLIFF: The question I'd ask is,  
13      you know, you talk about the difficulty of -- the  
14      additional costs that come from rooftop design,  
15      the construction costs, the staging costs and so  
16      forth. And that makes sense to me.

17              But I wondered, when you talk about  
18      simple station costs, do those costs -- can they  
19      capture the additional cost, for instance, from  
20      environmental mitigation and those kinds of  
21      issues, the difficulty of design for some of these  
22      projects.

23              Is that also included in the calculus  
24      that you're using?

25              MR. OLSON: Yeah, I mean part of the

1       issue is that there's not a voluminous amount of  
2       information out there on actual installs. And the  
3       ground has been sort of shifting under our feet  
4       over the last year.

5               And so it's very difficult to go and  
6       find any study that sort of comprehensively  
7       compares rooftop versus ground-mounted that looks  
8       at projects of various different sizes. There's  
9       just an enormous amount of uncertainty out there  
10      right now, you know.

11             So when we looked at these numbers in  
12      the past the conclusion that we've come to is that  
13      the economies of scale that you get when building  
14      these things at a central location outweigh, even  
15      incorporating, you know, the issues that we've  
16      discussed, the project development costs, the fact  
17      that you have to go to the ISO and get  
18      interconnection agreement, the transmission  
19      issues, the environmental mitigation issues, that  
20      those issues would be, that the economies of scale  
21      would outweigh the fact that when you go on the  
22      rooftop every rooftop is different.

23             You have to start bringing these panels  
24      in to very congested urban areas. You have much  
25      higher land costs. You have much higher labor



1 costs. You're dealing with building owners that  
2 may or may be very friendly to the idea of a  
3 utility coming into its rooftop to install PV  
4 panels.

5 That that building owner, when it looks  
6 at the California strong push to build 30,000  
7 megawatts of PV, might -- and the fact that the  
8 utility is going to be potentially penalized if it  
9 doesn't meet its RPS targets, or its GHG targets,  
10 and tries to figure out how much can I -- how much  
11 rent can I extract from the utility for using my  
12 roof to put PV onto.

13 Those are a number of factors that, to  
14 me it's really common sense, that a larger project  
15 with staging, with deals with vendors where you  
16 get a bulk discount for buying, you know, all of  
17 the panels at once. Delivering them all to the  
18 same location at once. They've been issues that a  
19 larger project, ground-mounted, it should be  
20 significantly cheaper.

21 MR. RATLIFF: Might there be a wide  
22 variability in costs for these central station  
23 projects, as well, depending on such things as  
24 whether or not it's on endangered species habitat,  
25 or whether it's dry cooled as opposed to wet

1       cooled? I mean we've had proposals for a wide  
2       variety of projects at this agency.

3               MR. OLSON: Yeah, in terms of cooling --  
4       cooling, of course, isn't an issue for PV. But,  
5       yes, obviously there would be a wide variety of,  
6       depending on what the land looks like, how flat is  
7       it; how much site preparation would be required;  
8       what distance is it to the nearest substation; you  
9       know, what type of transmission facilities would  
10      you need to build. There'd be any number of  
11      reasons why there'd be a variety of costs for  
12      central station projects, as well as for the  
13      rooftop projects.

14             MR. RATLIFF: Does that make, then, the  
15      comparison more difficult then, more perilous?

16             MR. OLSON: Yes, absolutely it does.  
17      It's very -- it's really murky waters we're in  
18      here. And it's hard to draw any kind of general  
19      rule. So I threw these numbers around like 8  
20      percent and 21 percent. So these are the best  
21      estimates that we could develop based on the best  
22      data that we could find on the distinction between  
23      rooftop and ground-mounted.

24             But, again, there aren't a lot of  
25      studies out there that look at roof versus ground

1       comprehensively, using the same set of  
2       circumstances on an apples-to-apples kind of a  
3       basis.

4               MR. POWERS: I would, if possible, this  
5       is Bill Powers, I'd like to interject a couple of  
6       comments on this line of discussion, if possible?

7               HEARING OFFICER KRAMER: Go right ahead.

8               MR. POWERS: On this issue of economies  
9       of scale, the SCE urban PV project is 500  
10      megawatts. The Ivanpah project is 400 megawatts.  
11      You could make the argument that the economies of  
12      scale should actually favor the urban PV project  
13      because it's bigger.

14              And the issue of economies of scale in  
15      buying equipment, any major installer of the urban  
16      PV project would have the same wholesale buying  
17      arrangements that SCE explicitly says in its  
18      application that because we're building a larger  
19      PV project, we will take advantage of the  
20      economies of scale by purchasing 500 megawatts of  
21      PV systems.

22              And the same is true for anyone building  
23      a PV project in the urban core. Yes, the PV will  
24      be installed on dozens or hundreds of rooftops.  
25      You share the same economies of scale in terms of

1 purchasing power by doing that.

2 And this concept that every roof is  
3 different is false. I mentioned during my  
4 testimony that we have done in San Diego a survey  
5 over 50,000 commercial rooftops and categorized  
6 them by class 1, which is a very clean roof that's  
7 80 percent of it can be covered with PV panels  
8 class 2 60 percent, and class 3 is everything  
9 else. That commercial rooftops generally follow a  
10 very cookie-cutter format.

11 And that the common theme is that  
12 there's so much commonality between the rooftops.  
13 This is not a major issue.

14 And I just want to make one other  
15 comment, is that the repeated comment everything  
16 changed a year ago, which to me is referring to  
17 the economic slump, that all of this PV price,  
18 that illusion has come about because of the  
19 economic slump.

20 I don't agree with that at all. The  
21 revolution in PV pricing came about  
22 technologically about 2006. And really hit a --  
23 got momentum in 2007 with the advent of these big  
24 first solar -- projects. Was soon followed in  
25 California by the announcement of the very large

1 SCE urban PV project based on, first of all  
2 there's been no technology that predated the  
3 economic slump, and that occurred during economic  
4 boom times.

5 What happened a year ago was we hit an  
6 economic slump that forced the PV industry to  
7 respond to the fact that it was no longer boom  
8 time. When the demand for PV panels was  
9 outstripping PV production capability, the PV  
10 production capability grew tremendously during  
11 that period.

12 At the same time the economic slump hit  
13 forcing the manufacturers of convention  
14 polyurethane silicon panels to really tighten  
15 their belts and pull in their prices so that they  
16 could compete with thin film for bigger jobs.

17 But the revolution was thin film at a  
18 low cost that it represents, and the evolution is  
19 that the economic slump and the tremendous  
20 expansion of manufacturing capability, which is  
21 caused the conventional PV manufacturers that want  
22 to stay in business to do everything in their  
23 power to try and cut the difference between thin  
24 film and their own product.

25 MR. HARRIS: Before we leave this cost

1       issue, I want to point out that the utility  
2       project that's being talked about here has  
3       guaranteed rate recovery, which means that if the  
4       estimates are wrong those costs go on the  
5       ratepayers.

6               Whereas with a merchant facility like  
7       this one, if the estimates are wrong the costs go  
8       to the bottomline of the company. And if Mr.  
9       Powers disagrees with that, or -- I guess I can  
10      put it in the form of a question that way, whether  
11      he disagrees with that merchant versus captive  
12      ratepayer cost issue.

13             MR. POWERS: My response to that would  
14      be SCE has a contract -- with NRG for 21 megawatts  
15      per solar PV. My understanding is that that  
16      contract was signed at the MPR. That it was a  
17      somewhat unusual contract. And that the -- MPR  
18      being market price referent, and that the contract  
19      through PG&E and Semptra Generation for a 10  
20      megawatt for the entire first solar array that  
21      would be exactly what you put around a substation.

22             That that contract was signed for an  
23      amount that is just above the market price  
24      referent. And so Semptra Generation and NRG must  
25      deliver at that price or they lose money.

1                   And I think that is the maybe yardstick  
2           I would measure the price level of PV, not a  
3           ratebased utility project.

4                   MR. HARRIS: Your reference there was to  
5           a 20 megawatt project, not the 500 megawatt  
6           project, your reference before, right? My point  
7           really is it gets ratebased. Do you disagree with  
8           that?

9                   MR. POWERS: No, I don't, obviously not.  
10          It's utility owned -- 250 megawatts of it is  
11          utility owned, 250 megawatts of it will be PPAs  
12          selling to the utility. And the utility, in this  
13          case, will give them what is essentially a feed-in  
14          tariff, a fixed price. I don't disagree with  
15          that.

16                  MR. RATLIFF: Well, I agree with it  
17          generally, but I think it's more complicated than  
18          that. I mean in the general rate cases, if you  
19          haven't made proven contracts and you're losing  
20          money on them, then typically the CPU Staff is not  
21          going to say that your plans were prudent, or that  
22          they were, in fact, carried out correctly.

23                  The utilities can --

24                  MR. POWERS: I don't --

25                  (Parties speaking simultaneously.)

1                   MR. RATLIFF:  -- get dinged for their  
2                   bad business deals.

3                   MR. HARRIS:  I agree, I agree, Dick.  
4                   I'm not suggesting at all that you wouldn't follow  
5                   the normal process of the PUC.  I was just trying  
6                   to make a distinction between a merchant model and  
7                   a utility-owned model.

8                   As somebody represents merchant  
9                   facilities, that's kind of an important  
10                  distinction for me.  But I think it's an important  
11                  one for the Committee to think about when they  
12                  start thinking about costs.

13                  MS. BELENKY:  I'd like to ask a couple  
14                  of questions that go to the cost.

15                  MR. GRAY:  This is Roger Gray.  I have a  
16                  question for Mr. Powers on the projects he just  
17                  mentioned.

18                  MS. BELENKY:  Somebody's got music --

19                  MR. GRAY:  May I ask a question of Mr.  
20                  Powers?

21                  HEARING OFFICER KRAMER:  Certainly.

22                  MR. GRAY:  This is Roger Gray.  The  
23                  two --

24                  (Background music.)

25                  HEARING OFFICER KRAMER:  Oh, boy --



1                   MR. POWERS: Excuse me, there seems to  
2           be a lot of music.

3                   (Laughter.)

4                   MR. HARRIS: What music, Mr. Powers?

5                   (Laughter.)

6                   HEARING OFFICER KRAMER: Can you hear us  
7           over the music?

8                   MR. POWERS: Yes, if you speak loudly, I  
9           can hear you over the music.

10                  HEARING OFFICER KRAMER: Okay, we'll  
11           have to admonish -- when the music stops we'll  
12           stop and ask the person who just came back  
13           (inaudible) --

14                  MS. BELENKY: Well, do we know when  
15           they're coming back?

16                  MR. HARRIS: Is there any way to  
17           disconnect --

18                  HEARING OFFICER KRAMER: -- by the  
19           previous admonition.

20                  PRESIDING MEMBER BYRON: Otherwise we  
21           have to kill the phone line.

22                  MR. GRAY: Mr. Powers, this is Roger  
23           Gray. Can you hear me okay?

24                  MR. POWERS: I can.

25                  MR. GRAY: My question was for the two

1 projects you just mentioned, the Edison, not the  
2 500 megawatts but the 20, I think it was 21  
3 megawatts, and the 10 megawatts, what are the  
4 locations of those?

5 HEARING OFFICER KRAMER: Hold on a  
6 second. Somebody just came on the line, back from  
7 putting us on hold, is that correct? On the  
8 telephone?

9 PRESIDING MEMBER BYRON: Whoever.

10 HEARING OFFICER KRAMER: Anyway, if you  
11 don't want to 'fess up, that's fine. But we can  
12 now certify to you that your system does have  
13 music on hold.

14 (Laughter.)

15 HEARING OFFICER KRAMER: So, go ahead,  
16 Mr. Powers. Do you recall the question? Go ahead  
17 an answer it.

18 MR. POWERS: Yes. The 10 megawatt  
19 facility is in Boulder City, Nevada. The 21  
20 megawatt facility is in Blythe, California.

21 MR. GRAY: Thank you.

22 PRESIDING MEMBER BYRON: This is  
23 Commissioner Byron. Quick question for the  
24 applicant. They've had a lot of discussion around  
25 the cost of distributed photovoltaic. Is there

1       any information in the record here that indicates  
2       the cost installed or purchased with regard to  
3       this project?

4               MR. GRAY:  Commissioner Byron, can you  
5       repeat that?

6               PRESIDING MEMBER BYRON:  How much did --  
7       how much does the Ivanpah Generating Station cost  
8       in terms of kilowatt hours?  What does the power  
9       purchase agreement look like?  Those are the kind  
10      of things I'd be interested in for comparison sake  
11      here.

12              MR. HARRIS:  We'd be constrained by  
13      whatever's in the public record at the PUC.  
14      Obviously you can take official notice of that.  
15      But we haven't put price information into our  
16      environmental analysis.  It's not one of the bases  
17      upon which the Commission makes a decision.

18              It's not the basis for -- it's not in  
19      there.  But we can get you whatever is in the  
20      public record.  And we'll talk about official  
21      noticed documents later.  And certainly PUC  
22      documents like that are the type of things we're  
23      going to be relying on.

24              PRESIDING MEMBER BYRON:  Yeah, that's  
25      the answer I expected.  Thank you.

1 MS. BELENKY: I had a quick question on  
2 cost. I just wanted to make sure.

3 We're talking about different costs of  
4 the different systems, and I realize I actually  
5 had the same question as the Commissioner.

6 And I also want to make sure we're clear  
7 here. The transmission line, the new transmission  
8 line that is required for this project, if it is  
9 sited in this area. The Eldorado/Ivanpah  
10 transmission line, and the new substation, those  
11 are going through a PUC process and those costs  
12 have not been added in, or a percentage of those  
13 costs, if we assume that they would be used for  
14 various power plants, those costs have not been  
15 added into any calculations about the cost of  
16 energy from this station, is that correct?

17 I'm not sure which of -- I think that  
18 perhaps my question is confusing because we just  
19 had testimony from the applicant that the cost of  
20 per megawatt hour, kilowatt hour, generated from  
21 this station has not been clearly stated.

22 But in that statement would it include,  
23 would you include the cost from the new  
24 transmission and the new substations that are  
25 required for this plant?

1                   MR. HARRIS: First off, it was my  
2                   statement, so it wasn't testimony. But that's not  
3                   this project. I disagree with the  
4                   characterizations of counsel, but we'll leave that  
5                   for briefs.

6                   Those PUC documents are available if you  
7                   want to look at the Edison project, which is 1400  
8                   megawatts, as I understand it. So it's not for  
9                   this project --

10                  MS. BELENKY: I'm talking about the  
11                  transmission lines. But actually we do have  
12                  testimony on the question of the need for the  
13                  transmission lines for this project.

14                  I didn't say they were part of the  
15                  project, I said they're needed for the project.

16                  I just had a couple of other questions.  
17                  And I think this follows on Mr. Ratliff's  
18                  question. The value of the habitat, regardless of  
19                  the cost of mitigation, which is a different  
20                  question, but the value of the habitat and loss of  
21                  habitat in this area is not calculated in any of  
22                  your calculations, is that true, Mr. Olson?

23                  MR. OLSON: I'm sorry, are you referring  
24                  to the value of habitat -- which habitat are  
25                  referring to? I'm sorry.

1 MS. BELENKY: As understand your  
2 opinion, and perhaps I'm misunderstanding your  
3 opinion. You're saying that no matter what it is  
4 less expensive, although now we have confirmed  
5 that we don't have testimony on the cost, but  
6 somehow it is less costly to build this plant than  
7 it would be to install 400 megawatts of PV,  
8 distributed PV.

9 MR. OLSON: If I can just clarify, my  
10 testimony doesn't address at all the cost of  
11 building solar-thermal projects. What my  
12 testimony addressed is the relative cost of  
13 building a remote PV installation versus building  
14 a PV installation on a rooftop in an urban area.

15 MS. BELENKY: Okay, so you're comparing,  
16 not comparing this project, you're comparing a  
17 different project to distributed PV?

18 MR. OLSON: Yeah, exactly. I'm  
19 comparing a hypothetical ground-mounted project in  
20 a desert locatio with good insolation to a  
21 hypothetical roof-mounted PV project in an urban  
22 area with less good insolation.

23 MS. BELENKY: And in those calculations  
24 that you made did you take into account the  
25 habitat quality and the impacts to species, and

1 try to quantify that in any way?

2 MR. OLSON: Well, because both my remote  
3 and my urban projects were entirely hypothetical  
4 and entirely theoretical, I would have no basis on  
5 which to make any evaluations of the habitat that  
6 would be displaced.

7 MR. RATLIFF: Could I ask Mr Gray a  
8 question?

9 One of the things you talked about was  
10 the masked quality of distributed photovoltaic. I  
11 guess that's because if you're a system operator  
12 it just shows up as reduced load I suppose, right?

13 MR. GRAY: Mr. Ratliff -- this is Roger  
14 Gray, by the way -- I think one of the perplexing  
15 issues that I'm having with the discussion about  
16 distributed PV here is what is distributed PV.

17 I'm very close to Mr. Olson's  
18 definition. Described it as two categories. Mr.  
19 Powers, awhile ago when I asked a clarifying  
20 question about the location of the two projects in  
21 Boulder City and Blythe, those are more what both  
22 Mr. Olson and I have been calling utility, as  
23 opposed to distributed PV projects.

24 So, if the utility-scale project is  
25 under either a large generator interconnection

1       agreement or a smaller generator interconnection  
2       agreement, they're going to be cooperating with  
3       Cal-ISO and the local utility, et cetera.

4               What I call a classically distributed PV  
5       project, usually associated behind, I think Mr.  
6       Powers used the term urban core on a roof, for  
7       example, that would be behind the meter.

8               And what that tends to do is the system  
9       operator cannot see that, cannot communicate with  
10      it directly. What the effect of it is is that the  
11      -- such generation, it creates a net load so that  
12      the total distributed PV generation, minus the  
13      actual physical load, equals the net load on the  
14      system. And that will fluctuate.

15              But my testimony was as that generation  
16      fluctuates the system operator must have  
17      generation that correspondingly goes up or down  
18      instantaneously to make sure that the system  
19      overall is balanced.

20              MR. RATLIFF: And does that generation  
21      have to be dispatchable?

22              MR. GRAY: It has to be very  
23      dispatchable and I suspect that all the utilities,  
24      as the concentration of intermittent resources in  
25      general, and distributed resources specifically,



1 will have to have a combination of both  
2 dispatchable generation and new storage  
3 technology, as well, re-engineering the  
4 transmission and distribution systems.

5 MR. RATLIFF: Storage, what kind of  
6 storage are you talking about?

7 MR. GRAY: Well, for example, the  
8 traditional storage technologies we've had in  
9 California, there's a couple of examples of pump  
10 storage facilities, one that Pacific Gas and  
11 Electric has and one that the Los Angeles  
12 Department of Water and Power has, so that they're  
13 able to -- basis, this is a fairly gross  
14 generalization, but pump at night, meaning  
15 conserve power, and generate during the day.

16 In addition to that kind of storage,  
17 we'll probably need different kinds of storage  
18 that can handle micro-changes. So I imagine we'll  
19 see perhaps additional pump storage, maybe what's  
20 called compressed air storage. There's a plant, I  
21 believe, in the State of Alabama. But we'll also  
22 need micro-storage that's able to send and receive  
23 electricity, more like a battery or flywheel type  
24 thing, to handle more instantaneous changes in  
25 generation and load, as well.

1                   MR. RATLIFF:  Apart from the storage  
2                   strategies, will you need -- do you have a lot of  
3                   intermittent distributed generation, or perhaps I  
4                   guess the question is, is it just intermittent  
5                   generation generally, or is it different with just  
6                   distributed intermittent generation?

7                   Do you have to have more dispatchable  
8                   backup power then to step in for those  
9                   technologies?

10                  MR. GRAY:  You have to look at it from  
11                  the generation balance standpoint on a macro  
12                  basis.  You also have to filter it through a  
13                  transmission view of the world, and a distribution  
14                  view of the world, as well.

15                  On a macro basis intermittent  
16                  generation, whether it's distributed or whether  
17                  it's centralized, is going to have -- both those  
18                  types of generation will have an effect on the  
19                  centralized system of generation balancing.

20                  Distributed generation versus central  
21                  station generation will have different effects on  
22                  the transmission and distribution system.  And one  
23                  of the biggest concerns I have is the gross over-  
24                  simplification of the distribution systems that  
25                  are being made.

1                   Distribution feeders are not typically  
2 point-to-point lines that radiate from a  
3 distribution substation. They're more like roots  
4 of a tree that branch out. I'm not a botanist,  
5 I'm not going there. But they're very complex  
6 systems that branch multiple times. And the  
7 balancing and re-engineering of those types of  
8 circuits will be very challenging.

9                   Again, I'm not saying it can't be done.  
10 The technical potential to do this is great. As  
11 we introduce more smart grid controls and  
12 monitoring, we'll be able to do more of this, but  
13 it cannot be done overnight.

14                   And I think it's a matter of degrees. I  
15 think small amounts of distributed generation can  
16 enter the grid relatively easily. I hear megawatt  
17 numbers from Edison of 500 megawatts, and PG&E, I  
18 think, was 400 megawatts. Those -- basis system  
19 probably can be done relatively easily.  
20 Transmission basis, depends where it goes.

21                   For example, if all of that distributed  
22 generation, the 500 megawatts of Edison, was to go  
23 into the Palm Springs area, that would be a major  
24 problem for the transmission system, as an  
25 example. If you connected all at the distribution

1 level and then create a transmission issue,  
2 because the system west of Devers, which is the  
3 Palm Springs area, into the Los Angeles Basin is  
4 currently constrained.

5 MR. RATLIFF: Well, that was one of the  
6 questions actually I think was based on Mr.  
7 Olson's testimony that at some point, and I was  
8 curious about what the point was, if you add  
9 distributed PV the system has to be rebuilt to  
10 some degree to account for that. And I'm just  
11 wondering at what point that is, and how many -- I  
12 realize that this is probably going to make a  
13 difference, maybe the answer depends on where you  
14 are, but generally speaking, if there can be a  
15 generality about this, at what point do you begin  
16 to have problems?

17 MR. GRAY: I think Mr. Olson's answering  
18 Ms. Belenky's question regarding the 400 megawatts  
19 of distributed PV, and as a gross generalization,  
20 the ability for a large industrial utility like  
21 Edison or PG&E to integrate that into its system,  
22 if that generation is highly distributed and  
23 widely distributed, will create some, I would call  
24 it, smaller issues. More in the lines of safety  
25 issues and concerns that rule 21 would handle

1 typically.

2                   However, it is very dependent on the  
3 location of that generation. I'll give you a  
4 specific example, going back to the Palm Springs  
5 case. If that generation was all to be installed  
6 on the distribution level in the Palm Springs  
7 area, it would create a transmission issue for  
8 Edison. They would have to instantly back off the  
9 corresponding amount of generation coming in from  
10 the east of Palm Spring area. Because that  
11 generation effectively changes the loading of the  
12 transmission system.

13                   So even though the power never flows --  
14 it could flow upward of a distribution system, it  
15 would have a displacement effect. So the issue  
16 with electrical engineering is that everything  
17 affects everything else it's connected to. And in  
18 this case, if the 400 megawatts was to go to the  
19 Palm Springs area, Edison would have a major  
20 problem.

21                   MR. RATLIFF: And my --

22                   MR. POWERS: -- need to comment on this  
23 line of -- this is Bill Powers.

24                   MR. RATLIFF: Okay, and --

25                   MR. OLSON: I want to clarify that, --

1 MR. RATLIFF: Okay.

2 MR. OLSON: -- as well, on this specific  
3 issue because it gets to the rule 21 issue, which  
4 I address in my testimony.

5 So the study that we had for the PUC,  
6 for the 33 percent analysis, was attempting to get  
7 at exactly this question, is how much can you put  
8 on the system on a distributed basis without  
9 starting to cause problems for the distribution  
10 systems, as they're currently designed, by feeding  
11 power back up through facilities that weren't  
12 designed to have power. They're only designed to  
13 have power flow one way, radially out to the road.

14 Now, rule 21 says it's on a -- for each  
15 distribution system element, whether it's a feeder  
16 or a transformer bank, that you can't connect  
17 distributed generation equal to, on a cumulative  
18 basis, more than 15 percent of the peak loading on  
19 that feeder.

20 Now, that rule was designed, as I  
21 understand it, at a time when we were more worried  
22 about things like CHP, or things like baseload  
23 plants, where they might be feeding back, you  
24 might worry about them feeding power back up into  
25 the grid at night when loads are low.

1                   So, for PV, which produces energy during  
2                   the daytime when loads are higher, when we looked  
3                   at this for the CPUC study, we thought that it  
4                   made sense, just on a planning basis, to relax  
5                   that standard a little bit.

6                   And so we did some analysis looking at  
7                   duration curves for those distribution feeders.  
8                   And came up with a number of around 30 percent.  
9                   That it looked like that if you set a standard at  
10                  that 30 percent that there would be very very few  
11                  instances, given the data that we had, where there  
12                  would ever be power flowing back into the main  
13                  grid.

14                  So we used that 30 percent as kind of a  
15                  standard number. That number was contested by the  
16                  utilities. So we pushed it to see if we could get  
17                  it farther, and we got some push back.

18                  But, you know, I think there are going  
19                  to be future studies that will look at this issue.

20                  MR. RATLIFF: Thirty percent, did you  
21                  say?

22                  MR. OLSON: Yeah, I'm sorry, 30 percent  
23                  of the peak load you could install. So we made  
24                  the assumption that you could install on each  
25                  distribution element, take a feeder, a cumulative

1 DG equal to 30 percent of the maximum peak load on  
2 that feeder.

3 MR. RATLIFF: And what was rule 21's  
4 load?

5 MR. OLSON: Fifteen percent.

6 MR. RATLIFF: Okay, so you would double  
7 that?

8 MR. OLSON: That's right.

9 MR. RATLIFF: But the utilities were  
10 resisting that to some degree?

11 MR. OLSON: The utilities pushed back on  
12 that.

13 MR. RATLIFF: Okay.

14 MR. OLSON: And that's how we got, by  
15 the way, to that 6000 megawatt number of  
16 distributed PV to include in that case.

17 MR. RATLIFF: Okay, but that -- that's  
18 how you got to the 6000?

19 MS. BELENKY: It's still more than 400.

20 MR. THOMPSON: Yes.

21 MR. RATLIFF: And what does that 6000  
22 number represent exactly?

23 MR. OLSON: So that 6000 megawatt number  
24 represents sort of an economic potential to  
25 install distributed PV on load centers in



1 California without requiring upgrades to the  
2 existing distribution system.

3 MR. POWERS: Based on your assumption  
4 only one-third of the technical potential would be  
5 available economically, correct?

6 MR. OLSON: That's correct. Yeah. The  
7 technical potential is higher, it's more like to  
8 20,000. So we made the assumption that one-third  
9 of the rooftops would participate.

10 MR. POWERS: And was there any  
11 substantiation for that other than your gut  
12 feeling?

13 MR. OLSON: It's based on, you know,  
14 expert judgment and experience, based on looking  
15 at what the mechanisms might be for actually  
16 installing the stuff; looking at the records of  
17 utility programs. You know, things like, you  
18 know, even -- if you look at efficiency programs,  
19 you know, we're nowhere near achieving the  
20 technical potential of all the various efficiency  
21 programs that are out there, even though those  
22 things are wildly cost effective to install; new,  
23 more higher efficiency air conditioning units, for  
24 example.

25 But the penetration rates of the higher

1 efficiency air conditioners are nowhere near the  
2 one-third level that we're assuming here.

3 MR. POWERS: But projecting what you see  
4 in the past to the future, you're saying this is a  
5 reasonable assumption?

6 MR. OLSON: Yes, that's correct.

7 MR. POWERS: I do have a few -- this is  
8 Bill Powers -- I do have a few questions if this  
9 is an appropriate time to ask them?

10 HEARING OFFICER KRAMER: Yes, go ahead.

11 MR. POWERS: The first is I thought it  
12 was interesting, this is directed at Mr. Gray,  
13 that you indicate that one of the advantages of  
14 the Ivanpah project is that it can fire natural  
15 gas to cover its intermittency. And that really  
16 begs the question, if you can fire natural gas to  
17 cover intermittency, why are you building  
18 combustion turbines instead of building the very  
19 low efficiency steam cycle.

20 But I do want to make the point that you  
21 bring up this issue of masking load, PV masks  
22 load. That you are probably aware that the entire  
23 direction of the CEC's climate change program is  
24 net zero building where a core element of the  
25 entire strategic plan is to have PV mask loads.

1                   And I think that this whole idea of  
2           masking loads is somewhat an incorrect concept.  
3           Because currently in California we have the  
4           capability to meet our entire capacity needs like  
5           we have never, I think, in the history of  
6           California.

7                   Our reserve margin last summer, I think,  
8           was consistently 30 percent or more. We have  
9           tremendous reserve margins in California right  
10          now. We have flat or declining loads.

11                  And we have a complete system of backup  
12          to move briskly toward a distributed renewable  
13          generation future. We have the luxury of a  
14          support system.

15                  And the issue, I want to underscore the  
16          point we just talked about with Mr. Olson, that  
17          yes, the technical potential that Mr. Olson is  
18          deriving his 6000 megawatt number from, is around  
19          20,000 megawatts. And I think we're both talking  
20          about commercial rooftops.

21                  And that the calculations that I include  
22          in my testimony, which is based on the data  
23          submitted by the IOUs to the PUC indicating what  
24          the peak capacity was in each one of their  
25          substations, is that if we made the assumption

1       that 30 percent of peak capacity on a substation  
2       would never, or almost never, result in a reverse  
3       load condition on any substation in California.

4               And I think Mr. Olson's right to make  
5       that assumption, that our substations today can  
6       accept approximately 20,000 megawatts of inflow  
7       without even having to reconfigure the breakers.  
8       Without doing anything.

9               And that that again is a luxurious  
10       situation for the State of California. And a  
11       point that I don't think Mr. Gray might not be  
12       aware of this, but in -- the application to build  
13       this 500 megawatt PV project, he said, what we  
14       will do is that we will install telemetry so that  
15       we can communicate with the inverters all of the  
16       PV arrays under our control. And if we get into a  
17       situation where we are aware that in the weather-  
18       related intermittency from these units that might  
19       cause some liability problems, we'll back off on  
20       power output from the arrays.

21               And so they described, in their  
22       application, a wonderful methodology to avoid  
23       exactly what Mr. Gray and Mr. Olson are talking  
24       about, something that we should be concerned  
25       about, is the reliability of our grid if we have a

1       tremendous amount of PV penetration, when SCE is  
2       saying, no problem.

3               Telemetry, and by the way, under the  
4       IEEE 1547 standard, all of these arrays have to be  
5       equipped with real-time data output, sensors,  
6       capability for this type of communication. None  
7       of this is novelty. No technological evolution is  
8       required to allow the utilities to directly  
9       control the arrays preemptively if they are  
10      concerned about some type of intermittency  
11      affecting the grid.

12             And the overarching point, I thought it  
13      was interesting, Mr. Gray, that in your testimony  
14      you say in some areas of North America it is  
15      possible that very high penetrations of  
16      distributed system connected variable generation  
17      could be achieved in the future, as has occurred  
18      in some regions in Denmark and Germany. That's  
19      exactly right. Germany and Denmark are  
20      laboratories, free of charge, for the State of  
21      California, on exactly how to absorb the  
22      tremendous amount of distributed generation with  
23      little or not pick-up.

24             MR. HARRIS: I want to clarify  
25      something. The Germany, Denmark stuff is not in

1 Mr. Gray's testimony.

2 MR. POWERS: I'm reading it from his  
3 rebuttal testimony.

4 MR. HARRIS: Is it, Roger?

5 MR. GRAY: I didn't talk about Germany  
6 or Denmark. And I'd like to --

7 MR. POWERS: I just read these sentences  
8 from your testimony, Mr. Gray.

9 MR. HARRIS: I don't recall that.

10 MR. GRAY: Can you give me a reference?

11 MR. POWERS: If you look at the last  
12 paragraph on page A-28, it begins: In some areas  
13 of North America as have occurred in some regions  
14 of Denmark and Germany." That's a direct quote.

15 MR. GRAY: But I didn't arrive at the  
16 conclusion you just made.

17 MR. POWERS: No, --

18 (Parties speaking simultaneously.)

19 MR. HARRIS: I'll just be clear, that's  
20 an internal quote, right? It's somebody else's  
21 statement.

22 MR. GRAY: It's NERC.

23 MR. HARRIS: Yeah, it's a citation to  
24 footnote 15, which is a NERC document. So I just  
25 wanted to be clear that that was not Roger's

1 testimony. It was something he quoted.

2 MR. POWERS: Well,, it is Roger's  
3 testimony. If he puts a quote in his testimony  
4 and doesn't contest what the quote is saying, it  
5 is his testimony.

6 But do either of you contest that there  
7 have been high levels of DG penetration in Denmark  
8 and Germany? Is that in dispute?

9 MR. GRAY: I think we need to -- this is  
10 Roger Gray. Let me make it very simple. I think  
11 that calling DPV, distributed photovoltaics,  
12 versus central station anything, solar-thermal or  
13 central station or photovoltaic, is a semantics  
14 issue. And to conclude that we can integrate  
15 large amounts of distributed generation or  
16 intermittent resources without any issues on  
17 substations or at the macro-level, at the system-  
18 balancing level, is fundamentally flawed.

19 If you ask me the hypothetical today,  
20 because we put on tens of thousands of megawatts  
21 of either solar-thermal, of wind, PV centralized,  
22 PV distributed, and operate the systems  
23 successfully, the answer would be you would try it  
24 once and it would fail. You would not try a  
25 second time.

1 MR. POWERS: Mr. Gray, --

2 MR. GRAY: It would -- absolutely cannot  
3 be done. I'm not saying that distributed  
4 generation can't be increased into our system, but  
5 it is going to take changes in engineering of the  
6 distribution system, the transmission system and  
7 how we operate the overall system. And it's going  
8 to take changes in planning and operating  
9 protocols.

10 The planners -- Mr. Olson's testimony  
11 was from a planning perspective when he talked  
12 about 6000 megawatts. From an operating  
13 perspective, I put my planning head on I can say I  
14 tend to agree with that. But when I put an  
15 operating head on I say you can't do that without  
16 a lot of changes.

17 MR. POWERS: Mr. Gray, --

18 HEARING OFFICER KRAMER: Then the  
19 question arises as to whether are the tools and  
20 the technologies available to make those changes?  
21 Or are you saying that we have to advance our  
22 tools and technology in order to be able to do  
23 that?

24 Is it just a question of implementation,  
25 or is more research required?



1                   MR. GRAY: From a technical standpoint  
2                   in theory it can be done. It exists. The smart  
3                   grid concepts, when we implement more better  
4                   monitoring and better controls, and re-engineer  
5                   the system, it can be done theoretically.

6                   But to change and reconfigure hundreds  
7                   of thousands of miles of distribution circuits,  
8                   which is what it's going to take, is a gigantic --

9                   MR. POWERS: That's not a correct  
10                  statement. That is --

11                  MR. GRAY: -- it is a gigantic  
12                  engineering --

13                  (Parties speaking simultaneously.)

14                  MR. POWERS: -- absolutely not a correct  
15                  statement.

16                  MR. HARRIS: Well, let him finish and  
17                  then you can take issue with it.

18                  HEARING OFFICER KRAMER: Mr. Powers, --

19                  MR. GRAY: Is a gigantic engineering and  
20                  logistical challenge. And when the economic  
21                  realities of this get layered into it, I would  
22                  imagine the impacts would be very similar to Mr.  
23                  Olson's testimony where you take technical  
24                  potential is great.

25                  And then you filter it down by economic

1 and market potential and you find as each time you  
2 put a filter through it you get less and less.

3 I'm absolutely positive that distributed  
4 generation will grow in our society, as it's done  
5 in Denmark and Germany. I'm absolutely convinced  
6 of that. But it is not as simple as plug-and-play  
7 in semantics.

8 The system, if we attempted to do this  
9 today, the system would fall apart.

10 HEARING OFFICER KRAMER: Mr. Powers, and  
11 then Ms. Belenky.

12 MR. POWERS: I'd like to point out that  
13 I don't know exactly when Ivanpah submitted their  
14 application, but in 2008 and 2009, let's say it  
15 was January 1, 2008. Between January 1, 2008 to  
16 December 31, 2009, the Germans put in 4500  
17 megawatts, predominately, almost exclusively,  
18 distributed rooftop PV.

19 And in some ways we're being myopic to  
20 talk about California's experience. The Germans  
21 are putting in -- if we were to put in the rate of  
22 the install on distributed photovoltaics that  
23 Germany achieved last year, nearly 3000 megawatts,  
24 starting today, we would meet the 6000 megawatt  
25 cap that Mr. Olson identified as his best guess,

1       by December 31, 2011. That fast. And the German  
2       system is not collapsing. The German system is  
3       thriving.

4               This has nothing to do with wires. The  
5       wires can take the energy whether it comes from  
6       one direction or another. It has nothing to do  
7       with the transformers. They don't care whether we  
8       step it up or we step it down.

9               It has to do some -- and we're not even  
10      talking about re-equipping our distribution  
11      substations here. We're talking about staying  
12      within rule 21 flow limits to prevent any flow  
13      going up from 12 kV to 69. What we're talking  
14      about is touching nothing, and putting 20,000  
15      megawatts on the line.

16              So I take issue with Mr. Gray's kind of  
17      generic "you should be very afraid" presentation.  
18      Because I don't see any of that as being a  
19      substantive obstacle to moving forward at the  
20      German rate or faster in California.

21              HEARING OFFICER KRAMER: Okay. Ms.  
22      Belenky, followed by me.

23              MS. BELENKY: I just wanted to clarify,  
24      bring us a little bit back -- this has been  
25      fascinating, by the way -- bring us a little bit

1 back to why this is being presented on the panel  
2 here on alternatives for the Ivanpah project.

3 And my understanding, and the context in  
4 which the Center has brought Bill Powers, is  
5 specifically to discuss whether there's a feasible  
6 alternative to the project, the Ivanpah project,  
7 as proposed, as the site has been proposed, a  
8 feasible alternative that could also provide 400  
9 megawatts and avoid the impacts of the project.

10 So, I know it's fascinating to know  
11 whether we could get 20,000 megawatts on with  
12 distributed. I think that would be fabulous.

13 I'm wondering if -- I just want to make  
14 sure, I believe I asked Mr. Olson this directly  
15 and, Mr. Gray, I would ask you, also, is it your  
16 opinion that there is currently capacity to put on  
17 400 megawatts of distributed generation in the  
18 system at this time.

19 MR. GRAY: This is Roger Gray. Where?

20 MS. BELENKY: Where?

21 MR. GRAY: I cannot give a generic  
22 answer to that question.

23 MS. BELENKY: Oh, I see, --

24 MR. GRAY: Where are you proposing the  
25 400 megawatts --

1 MS. BELENKY: Okay, that's a good  
2 question.

3 MR. GRAY: I gave you an example of Palm  
4 Springs, the answer would be no.

5 MS. BELENKY: I see. And if I asked the  
6 Los Angeles Basin?

7 MR. GRAY: It would depend on where it  
8 is distributed. If it's highly distributed to the  
9 Los Angeles Basin, I'm not going to make an  
10 argument that you cannot find 400 megawatts highly  
11 distributed to the Los Angeles Basin among  
12 thousands of rooftops. It is probably technically  
13 possible. And the primary issues are going to be  
14 safety concerns and some rule 21 concerns.

15 However, if you attempt to start putting  
16 it in large amounts at substations or near  
17 substations in blocks of 5 megawatts and 10  
18 megawatts, similar to the projects that Mr. Powers  
19 has quoted out in Boulder City and Blythe, you  
20 will change power flows on the distribution and  
21 transmission system. And you will start to create  
22 issues.

23 Every specific circumstance would have  
24 to be evaluated very carefully. So I can't give a  
25 generic answer. It's easy to provide bookends at

1       one extreme or the other, but it's all the  
2       thousands and millions of cases in between that  
3       would have to be evaluated.

4               Southern California Edison, I'm sure, is  
5       concerned with this issue. And because they will  
6       find a way to manage this 500 megawatt  
7       implementation, will find a way to highly  
8       distribute that in the Los Angeles Basin around  
9       their system. And I'm confident, will find  
10      successful ways to do that without creating  
11      distribution, transmission or system impacts.

12              But it cannot be generically said that  
13      you can park large blocks of that 400 megawatts at  
14      any particular location without issues.

15              MS. BELENKY: I think we may be talking  
16      past each other. But, -- and I don't want to  
17      belabor the point. I think there is -- Mr. Olson  
18      agreed that there is capacity on the system for  
19      400 megawatts, and you disagree. As two different  
20      experts from the same party, that's fine.

21              I just --

22              MR. HARRIS: Well, wait a -- wait a  
23      minute.

24              MR. GRAY: It's two different answers to  
25      two different questions.

1                   MR. HARRIS: Yeah. You want to ask --  
2                   don't characterize --

3                   MS. BELENKY: I did ask the same  
4                   question.

5                   MR. HARRIS: -- the testimony. If  
6                   you've got questions, that's fine. But I think  
7                   you've mischaracterized it.

8                   MS. BELENKY: I asked Mr. Olson if he  
9                   believes that there was capacity for 400 megawatts  
10                  of distributed generation on the system at this  
11                  time. And he said yes. Would you like to change  
12                  your answer?

13                  MR. OLSON: I believe Mr. Gray has just  
14                  given a more nuanced answer than my kind of  
15                  blanket yes. So, if you would ask the question  
16                  more specifically, saying is there somewhere,  
17                  anywhere in California the possibility to install  
18                  400 megawatts of PV, then I would say yes.

19                  If you were to ask it, you know, at a  
20                  more specific location, more on the lines of what  
21                  Mr. Gray said, then, you know, the realities are  
22                  as Mr. Gray said, that you have to look at each  
23                  case individually.

24                  But, generally, you know, could you find  
25                  400 megawatts somewhere anywhere, and my answer

1 still was yes.

2 MS. BELENKY: Thank you. I just had one  
3 more question, actually for you, Mr. Olson. You  
4 mentioned your chart that you did about the  
5 different solarity in different places, is that  
6 correct? And that chart was based on Daggett, is  
7 that correct?

8 MR. OLSON: Let me just find it here so  
9 I can be specific in the answer.

10 HEARING OFFICER KRAMER: Can you just  
11 give us the page number?

12 MS. BELENKY: Oh, I'm sorry, I have that  
13 in here.

14 MR. OLSON: It's on page A-18.

15 HEARING OFFICER KRAMER: That's A,  
16 alpha-18?

17 MR. OLSON: Alpha-18, yes. So what  
18 we've done here is using the NREL PV WATTS Version  
19 1 web application, we entered these standardized  
20 assumptions that I list out here in the bullet  
21 points into this web application, and calculated  
22 that the PV WATTS Version 1 lists -- these  
23 specific sites that you see here are sites that  
24 are listed in the NREL PV WATTS web application.

25 And so we entered this set of



1 specifications for the array for each of these  
2 locations. And what you see in the second column  
3 is the capacity factor that the application output  
4 back to us. And what you see in the right-hand  
5 column is I've calculated the difference for each  
6 of the locations relative to Daggett as a  
7 reference point, with Daggett being the most  
8 favorable solar resource that's modeled in the  
9 NREL PV WATTS model.

10 MS. BELENKY: Thank you. I just wanted  
11 to ask you a couple more questions so I understand  
12 what you're providing with this.

13 First of all, Daggett is not the same  
14 exactly as Ivanpah, is that correct?

15 MR. OLSON: That's correct. Daggett is  
16 located near Barstow.

17 MS. BELENKY: And we had some testimony  
18 yesterday from the applicant's expert about the --  
19 a little bit about the cloud cover that they've  
20 estimated at Ivanpah. But you didn't take any of  
21 that into account, is that correct?

22 MR. HARRIS: How about is that within  
23 the scope of his testimony?

24 MS. BELENKY: Did you make any attempt  
25 to factor in any difference that there might be

1       between Daggett and the Ivanpah site?

2               MR. OLSON:  No, I did not.

3               MS. BELENKY:  Thank you.  And when it  
4       says Los Angeles, I'm just very curious how this  
5       is derived.  For example, Los Angeles, do you mean  
6       the entire county, so you're taking into account  
7       both the areas right along the coast and the  
8       inland areas?

9               MR. OLSON:  My understanding is that  
10       they've chosen a specific site.  This is deep in  
11       the details of the NREL database methodology.  My  
12       understanding is that they've chosen a specific  
13       site, and is not one that's right along the coast.  
14       It's not, you know, Santa Monica, for example.

15              MS. BELENKY:  Okay, so we will refer to  
16       that.  So all of these assessments, the percentage  
17       is all just taken directly from the other report,  
18       is that correct?

19              MR. OLSON:  It's taken directly from --  
20       these are outputs from the NREL PV WATTS web  
21       application.

22              MS. BELENKY:  I'm not sure -- you mean  
23       you input data?

24              MR. OLSON:  Okay, so on the NREL website  
25       they have, there's an application where you can

1 put in specifications for any given PV system.

2 And it will tell you -- and the location -- and it  
3 will tell you what capacity factor you can expect  
4 to achieve at that location.

5 MS. BELENKY: So what location -- so you  
6 input which location?

7 MR. OLSON: So we input --

8 MS. BELENKY: You said Los Angeles, is  
9 that correct?

10 MR. THOMPSON: So we inputted the PV  
11 specifications that you see in the bold points.  
12 The specific geographic locations that you see in  
13 the table are geographic locations that exist in  
14 the NREL database. The PV WATTS version 1  
15 database has insolation data for these specific  
16 locations.

17 MS. BELENKY: I see. You put in those  
18 and then they have certain set locations that it  
19 provides the calculation for?

20 MR. OLSON: That's correct.

21 MS. BELENKY: Okay, so if we changed  
22 some of these other assumptions at the top here  
23 that you say you put in, we would get different  
24 numbers, is that correct?

25 MR. OLSON: That's correct, yes.

1 MS. BELENKY: Okay, thank you very much.

2 HEARING OFFICER KRAMER: It sounds to  
3 us, we certainly want to leave the impression that  
4 we've received a wealth of evidence on this  
5 particular subtopic in alternatives. But it also  
6 sounds as if we're at the point where the parties  
7 are not going to agree. They've certainly  
8 explored each other's positions.

9 Again, to the degree that we are  
10 comfortable that we have received a wealth of  
11 information on the topic, so I want to ask one  
12 more time if somebody has some new insight with  
13 regard to this topic that they'd like to --

14 MR. RATLIFF: No insight, Mr. Kramer,  
15 but I would like to ask, since this cuts across  
16 all of our solar-thermal cases, one question I'd  
17 like to ask that we touched on last night with Mr.  
18 Powers is, and I think this question is for Mr.  
19 Olson -- it could be to anyone, but I think Mr.  
20 Olson may be familiar with all the PUC work with  
21 the Energy Commission forecasts, and would be --  
22 forecasts used in the long-term procurement  
23 process.

24 In your opinion are those forecasts  
25 optimistic, pessimistic, or roughly indicative of

1 the correct estimate of how much additional solar  
2 distributed PV we can expect? If you know the  
3 answer. If you don't, that's fine, too.

4 MR. OLSON: I'm sorry, are you referring  
5 to the estimates of California Solar Initiative PV  
6 that are embedded in the CEC --

7 MR. RATLIFF: Yes.

8 MR. OLSON: -- load forecasts?

9 MR. RATLIFF: Yes.

10 MR. OLSON: Yeah, I'm not familiar with  
11 the specific methodology that they used to develop  
12 those --

13 MR. RATLIFF: But you're familiar --

14 MR. OLSON: -- forecasts --

15 MR. RATLIFF: -- with the numbers,  
16 though, the estimated -- rough estimates of the  
17 numbers for each --

18 MR. OLSON: I'm familiar with the  
19 numbers from the 2007 IEPR. I've not had a chance  
20 to look at the 2009, the most recent forecast, to  
21 understand specifically what the differences are  
22 there. I understand that they're higher.

23 MR. RATLIFF: The estimates for PV?

24 MR. OLSON: The estimates for PV  
25 penetration are higher, yes.

1                   MR. RATLIFF: Do you have an impression  
2                   about whether they're optimistic or pessimistic or  
3                   something in between?

4                   MR. OLSON: I don't have an opinion on  
5                   that.

6                   MR. RATLIFF: Okay. Thank you.

7                   HEARING OFFICER KRAMER: Okay, let's  
8                   move on then to the other alternative topics not  
9                   related to the distributed PV.

10                  MR. POWERS: Mr. Kramer, I think I'll  
11                  sign off at this point. This is Bill Powers.

12                  HEARING OFFICER KRAMER: Okay, thank you  
13                  for calling in.

14                  MR. POWERS: Thank you.

15                  HEARING OFFICER KRAMER: Does anybody  
16                  want to get the ball rolling? Ms. Lee, did you  
17                  have any more points you wished to make?

18                  MS. LEE: No. Just available for  
19                  questions.

20                  HEARING OFFICER KRAMER: Actually I have  
21                  one question for you.

22                  MS. LEE: Yes.

23                  HEARING OFFICER KRAMER: And you may  
24                  have answered it earlier and I just didn't hear  
25                  it.

1                   Did you have any estimate of the  
2                   approximate output that the plant on the reduced  
3                   footprint would be able to produce?

4                   MS. LEE: No. It's very complicated.  
5                   We tried to get information like that from the  
6                   applicant, but because the heliostats don't  
7                   generate power equally, based on their location  
8                   within the grid, our understanding is the ones  
9                   closest to the tower generate a lot more power  
10                  than the ones further out. And we are talking  
11                  about getting rid of the ones further out.

12                  But that's as much as I can say.

13                  HEARING OFFICER KRAMER: And what was --  
14                  is there a percentage reduction that you can  
15                  estimate in the footprint?

16                  MS. LEE: In terms of land area the  
17                  rough estimate that I've made is about a quarter  
18                  of Ivanpah 3, which is the largest one, the  
19                  northern one. And maybe a quarter or less of  
20                  Ivanpah 1, which is the southern one that has a  
21                  very dense population of special status plants.

22                  HEARING OFFICER KRAMER: And a lot of  
23                  the plants are concentrated in the area between  
24                  Ivanpah 1 and 2, correct?

25                  MS. LEE: Yeah. That area, actually in

1 the applicant's recent plan, there's some of that  
2 that would be avoided. That's a -- it's a laydown  
3 and substation area. So there's, I think, some  
4 flexibility in there if you're outside of the two  
5 Ivanpah 1 and Ivanpah 2 boundaries. But I'm not  
6 sure to what extent our biologist could really  
7 conclude that they've avoided enough that they're  
8 comfortable.

9 Overall, the response on the avoidance  
10 plan provided for bio-18 was just that it was not  
11 adequate.

12 HEARING OFFICER KRAMER: Thank you. Any  
13 other questions?

14 MR. HARRIS: I guess I want to ask, I  
15 don't have the map in front of me, so you lose  
16 about a quarter of Ivanpah 3, and that's in the  
17 north area, is that right?

18 MS. LEE: Yeah, if you look at  
19 biological resources figure 2, that one had the  
20 shaded area across the north and northwestern  
21 part. So, I mean that's a pretty rough estimate.  
22 It might be 20 percent.

23 MR. HARRIS: And you understand those  
24 northern heliostats are more valuable than the  
25 southern heliostats --



1 MS. LEE: No.

2 MR. HARRIS: -- in terms of generation  
3 of --

4 MS. LEE: Oh, okay, right, in terms of  
5 orientation.

6 MR. HARRIS: Yeah, in terms of  
7 generation. I mean, you didn't take that into  
8 consideration in drawing your line?

9 MS. LEE: I didn't answer the question  
10 about the percent of generation, because I don't  
11 know.

12 MR. HARRIS: Okay, so you're not  
13 suggesting a direct correlation between land loss  
14 and generation loss?

15 MS. LEE: No, no, just --

16 MR. HARRIS: I just wanted to make sure  
17 it was clear on that.

18 MS. LEE: -- I'm just talking about  
19 acreage, not generation.

20 MR. HARRIS: And then the Ivanpah 1, you  
21 say, lose about a third of that, as well. Is that  
22 on the norther side of the facility, again?

23 MS. LEE: I don't think it's a third. I  
24 would think it's more like 20 to 25 percent. But  
25 in that one it's the northwestern quadrant,

1       basically.

2                   MR. HARRIS:  Okay.  And that's figure 2,  
3       Susan?

4                   MS. LEE:  Biological resources figure 2.  
5       The one that's referenced in the condition of  
6       certification 18.

7                   MR. HARRIS:  That was very helpful,  
8       thank you.

9                   MS. SMITH:  Point of clarification.

10                  HEARING OFFICER KRAMER:  There's also a  
11       figure 3 in your rebuttal testimony.  Is that a  
12       better representation of this?

13                  MS. LEE:  It's very similar.  Actually  
14       figure 3 in the rebuttal testimony has the same --  
15       the red dots in figure 3 are the plant populations  
16       that you see in biological resources figure 2.  
17       But in figure 2 you see it in a lot of different  
18       colors.

19                  So what the dotted lines that I added  
20       onto rebuttal testimony figure 3 was just an  
21       attempt to show, by -- what you could avoid, by  
22       making these configurations smaller.

23                  So that the blue square that you see on  
24       rebuttal testimony figure 3 is basically pulling  
25       the boundaries in to avoid a lot of concentration

1 of rare plants around the outside.

2 And then the circle shown around the  
3 area between 1 and 2 is showing the area that  
4 really has the very dense concentration of special  
5 status plants in that area, so.

6 HEARING OFFICER KRAMER: But now it  
7 sounds like you've gone to a slightly nuanced  
8 modification that concentrates reductions in the  
9 upper left corner, is that right?

10 MS. LEE: They're both somewhat  
11 conceptual. I think what we were hoping to get  
12 from the applicant in response to condition of  
13 certification 18 was honestly something like this,  
14 that really would eliminate construction in these  
15 areas of highest plant concentrations.

16 And what we got in the plan, and this is  
17 something that our biologist would have to speak  
18 to more than me, but what we got was a very  
19 isolated, we could leave out this heliostat and  
20 this one and this one, but we'll build all around  
21 it.

22 So you would end up, and this was the  
23 concept you were hearing a couple days ago, of  
24 plant corrals, or little islands of plants, which  
25 our staff really is not comfortable with in terms

1 of reducing the impact.

2 MR. HARRIS: Ms. Lee, I want to make  
3 sure I understand then. So your lines, everything  
4 outside the line you're saying no construction  
5 whatsoever. So this is sort of -- true avoidance  
6 where --

7 MS. LEE: Exactly.

8 MR. HARRIS: -- you do not build in  
9 those areas?

10 MS. LEE: Exactly.

11 MR. HARRIS: What about within those  
12 other areas, in the build areas, then? Do we have  
13 to also implement the rare plant avoidance plan  
14 and put the fences up around the ones that are  
15 inside the remaining area? Is that your intent?

16 MS. LEE: We haven't talked about that,  
17 honestly.

18 MR. HARRIS: Well, it kind of matters to  
19 us.

20 MS. LEE: Do we have either of our  
21 botanists on the phone?

22 MS. CHAINEY-DAVIS: Hi, this is Carolyn  
23 Chainey-Davis.

24 MS. LEE: Carolyn, I don't know if  
25 you --

1 HEARING OFFICER KRAMER: Do you  
2 understand Mr. Harris' question?

3 MS. CHAINEY-DAVIS: We -- there are  
4 concentrations of rare plants in certain areas,  
5 the ones that she described. And then there are  
6 standard occurrence of other rare plants  
7 throughout the remainder of the solar field.

8 What we had envisioned is that the  
9 avoidance areas would be focused on -- what we'd  
10 envisioned and what we described in the FSA  
11 condition in the figure 2 that accompanied the  
12 FSA, was the avoidance that would focus on the  
13 areas of highest special status plants, density  
14 and diversity.

15 We also acknowledge that it would be  
16 difficult to minimize to meet the mitigation goal  
17 of 75 percent for two of the species under that  
18 scenario -- or for one of the species under that  
19 scenario, the Mojave milkweed, because it's  
20 distributed throughout the solar field, but not  
21 confined to areas of high density and diversity.

22 So there would still be significant  
23 effect impacts to that one species. But by  
24 focusing the avoidance in areas of high special  
25 status plants diversity and density, we would

1 substantially minimize impacts to special status  
2 plants in general.

3 MR. HARRIS: So, Carolyn, you're not in  
4 the room, so maybe you didn't quite get my  
5 question. So let me try it this way. You've got,  
6 on this reduced acreage alternative, you've got  
7 sort of boxes drawn, which I assume are the areas  
8 that you can build with inside the boxes, you do  
9 nothing outside the boxes? Maybe folks on Ivanpah  
10 3, if you've got that in front of you.

11 So my question is, are you saying  
12 essentially if we can build within the box, that  
13 we're good? Or are you saying we have to build  
14 within the box and we have to implement the rare  
15 plant avoidance plan to fence off certain  
16 heliostats within that box?

17 MS. CHAINEY-DAVIS: No, we're not  
18 advocating that you do that because -- and we  
19 clearly stated in the FSA that we did not believe  
20 that -- well, let me see if I can find the  
21 language, page 39 -- .2-39.

22 The applicant's low-impact development  
23 approach to substantially reduce the effects of  
24 the solar field on soil and water, however, Energy  
25 Commission Staff does not consider preservation of

1 special status plants by maintaining vegetation  
2 between the heliostat as a feasible avoidance  
3 measure.

4 We --

5 MR. HARRIS: Carolyn, I'm sorry to  
6 interrupt. I understand. It may be helpful if  
7 you could refer to figure 3 on your rebuttal  
8 testimony, which is the, I think, exhibit 305 that  
9 was served the other day.

10 Do you have a copy of that available to  
11 you? It's page 46 of my pdf version of the  
12 staff's exhibit 305, rebuttal to exhibit 305.

13 MS. CHAINEY-DAVIS: Would you give me  
14 the title of the figure?

15 MR. HARRIS: It's rebuttal testimony  
16 figure 3, reduced acreage alternative from PSA  
17 workshop presentation July 31, 2009.

18 MS. LEE: Carolyn, it's the third of the  
19 three alternatives figures that were attached to  
20 the rebuttal testimony. And it's the one on which  
21 I drew the little box and oval basically just to  
22 highlight ways to avoid the concentrated rare  
23 plant populations.

24 MS. CHAINEY-DAVIS: Okay, thank you,  
25 Susan.

1 MR. HARRIS: Do you have that?

2 MS. CHAINEY-DAVIS: I do have that.

3 MR. HARRIS: Okay, now just try to make  
4 it simpler, let's look at Ivanpah 3, to the north  
5 there. There's a blue dotted line, that's a new  
6 box, if you will.

7 My understanding is that everything  
8 outside that blue box would, you know, we wouldn't  
9 build in that. So there's no issue there.

10 My question for you, specifically, is  
11 with inside that blue box, are you also requiring  
12 us to implement our rare plant plan, and fence off  
13 locations and create rare plants avoidance zones?  
14 Is that question clear?

15 MS. CHAINEY-DAVIS: Well, it would be if  
16 I had a color copy of the graphic. I'm sorry I'm  
17 not prepared with all the exhibits.

18 If you can tell me their location in the  
19 blue box that you're inquiring about?

20 MR. HARRIS: It's the dotted line in  
21 Ivanpah 3 that reduces the size. It's got kind of  
22 the center tower pretty close to the center of the  
23 blue dotted line around it.

24 MS. LEE: It may -- I don't know if it  
25 will help for me to explain where the blue box



1       came from. What the general concept was there  
2       was, you know, Ivanpah 3 is a different  
3       configuration in terms of towers. It's got five  
4       separate towers instead of just a single tower  
5       with heliostats.

6               MS. CHAINEY-DAVIS: Yes.

7               MS. LEE: And the thought was that if  
8       you replicated Ivanpah 1 and Ivanpah 2, which were  
9       a single 100-acre tower with field, within the  
10      area of Ivanpah 3, you would eliminate a huge  
11      amount of the rare plant species.

12              And I believe, but I'm not sure, and  
13      this is what Carolyn can --

14              MS. CHAINEY-DAVIS: Yes.

15              MS. LEE: -- confirm. That within that  
16      box there would be no constraint to --

17              MS. CHAINEY-DAVIS: Correct.

18              MS. LEE: -- the effect -- the  
19      requirements of bio-18 wouldn't apply because this  
20      would replace it. But, --

21              MS. CHAINEY-DAVIS: Yes.

22              MR. HARRIS: Okay, so I want to make  
23      sure I got that then. So, if we're going to build  
24      with inside the box, then there is no rare plant  
25      avoidance plan as the applicant has suggested

1 per 18.

2 The avoidance of the other areas, in  
3 staff's mind, reduces the impact to less than  
4 significant?

5 MS. CHAINEY-DAVIS: For all but there's  
6 lingering effects still to Mojave milkweed. We  
7 acknowledge that in the FSA.

8 MR. HARRIS: So, I'm sorry, I need you  
9 to be very specific, though. Are you saying no  
10 rare plant plan within the boundaries of your new  
11 project, but we would have to protect the  
12 milkweed, the nine occurrence of the milkweed?

13 MS. CHAINEY-DAVIS: Well, as our witness  
14 -- I don't know we called him a witness or member  
15 of the public that called in to comment, Bruce  
16 Pavlik, on Tuesday, as he commented and as the  
17 staff concurred, the attempt to avoid Mojave  
18 milkweed or any other species within the managed  
19 portions of the solar field, where vegetation is  
20 managed, where the occurrences are, you know,  
21 subject to the indirect and edge effects of solar  
22 generation, we don't think those are sustainable  
23 avoidance measures.

24 So you may be able to minimize direct  
25 effects, you know, the immediate effects. But we

1 don't believe that that avoidance is sustainable  
2 over the long term. So, no, we're proposing -- we  
3 are not proposing that you try to do any avoidance  
4 between the heliostats.

5 MR. HARRIS: Okay, so then within the  
6 boundaries of your reconfigured site there is no  
7 rare plant avoidance plan. The mitigation is  
8 building the smaller footprint, is that correct,  
9 Carolyn?

10 MS. CHAINEY-DAVIS: Correct.

11 MR. HARRIS: Does Mr. Ratliff agree with  
12 that --

13 MR. RATLIFF: Yes.

14 MR. HARRIS: -- assessment?

15 MR. SUBA: I'd just like to ask, this is  
16 Greg Suba with the California Native Plant  
17 Society, that we are talking about the  
18 alternative, but we're also dipping into  
19 conditions. So I'm not sure exactly what we're  
20 talking about.

21 MS. LEE: Let me explain the connection  
22 there. When we were developing alternatives we  
23 were looking for an alternative that would avoid  
24 these severe impacts to rare plants.

25 And as you probably know, there's a

1 continuum from a mitigation measure to an  
2 alternative. Basically they can do the exact same  
3 thing depending on how specific it is.

4 We looked at different ways of reducing  
5 the acreage of this project to eliminate these  
6 rare plant issues, but after throwing around the  
7 idea a lot internally and talking with staff, we  
8 thought that it might be more effective to  
9 actually implement a condition of certification  
10 which would be specific just to the plant issues.  
11 And use that as a way to protect the plants.

12 We got the plan back three or four days  
13 ago with this avoidance in it, and the biology  
14 staff has found that it really does not work.

15 So, we've gone back to the alternative.  
16 So they're connected, certainly because one was  
17 intended to replace the other. We found that it  
18 didn't work. So what we're now suggesting is the  
19 alternative, itself.

20 MR. HARRIS: This is very intriguing.  
21 I've got another follow-up question. So your  
22 concern is basically land footprint, right? You  
23 don't care about how many -- you don't know how  
24 many megawatts might be affected by this.

25 MS. LEE: I don't know.

1                   MR. HARRIS: You're really concerned  
2                   about the footprint, where the fence boundary will  
3                   be with these lines, --

4                   MS. LEE: And where the resources are.

5                   MR. HARRIS: The technology actually is  
6                   more efficient if the tower is taller. And the  
7                   reason for that is that the angles of the mirrors  
8                   are, we'll just say better, how about that, with a  
9                   taller tower.

10                  We wouldn't want to go over 500 feet  
11                  because of FAA issues. But without pushing the  
12                  boundaries of the project out, with a slightly  
13                  taller tower we can probably get a lot more  
14                  generation in a smaller footprint.

15                  So, staff's concern really is about the  
16                  footprint and not about the generation production.

17                  MS. LEE: Exactly. We're dealing with,  
18                  from the CEQA perspective, project objectives.  
19                  Under CEQA we're required to attain most project  
20                  objectives. And the project objectives from the  
21                  applicant being 400 megawatts. We're comfortable  
22                  with something less than that.

23                  MR. HARRIS: Mr. Ratliff, what do you  
24                  think about a slightly taller tower in terms of  
25                  your visual testimony or --

1                   MR. RATLIFF: Well, my understanding is  
2     you're already at about, what, 460, 470 --

3                   MR. SPEAKER: 460.

4                   (Parties speaking simultaneously.)

5                   MR. RATLIFF: So you're like talking  
6     about a 20 --

7                   MR. DE YOUNG: So it's 30 feet.

8                   MR. HARRIS: Less than 30 feet. We  
9     wouldn't want to push close to 500 --

10                  MR. RATLIFF: Yeah, we're talking about  
11     a small incremental increase in height which, you  
12     know, the staff has already said that the current  
13     height is significant, so it doesn't change the  
14     staff's position in any way, or require different  
15     mitigation for visual.

16                  MR. HARRIS: From a visual perspective.  
17     Okay. But from a biological perspective it might  
18     help you reach a different conclusion on rare  
19     plants?

20                  MR. RATLIFF: Yes.

21                  MS. LEE: It's huge --

22                  MR. HARRIS: And then from a biological  
23     conclusion it will at least be smaller acreage for  
24     the desert tortoise mitigation --

25                  MS. LEE: Yeah, it's a lot of reduced

1 acreage on habitat mitigation.

2 MR. HARRIS: Doesn't change your basic  
3 position on bio-17, but it changes the acreage  
4 number that goes into your calculation.

5 MR. RATLIFF: Yes.

6 MR. SUBA: From a biological perspective  
7 our concern would be, and has been, that whether  
8 we're talking about preserving big chunks or the  
9 small islands, you're assuming that we're looking  
10 -- what we're missing is what the genetic makeup  
11 of those red dots on figure 3 represent.

12 We don't know if we are -- we don't know  
13 how best to preserve the genetic makeup, the  
14 largest swath of genes in the populations of those  
15 plants that are out there.

16 So, ideally we want to save as many  
17 different types of genes as we can. But does that  
18 mean are they represented in a small chunk of  
19 area? Or if we save that one chunk of area, is  
20 that just one big clone, and we've missed all the  
21 other mixture of genes that are out there.

22 That would not favor a long-term success  
23 because any accidental event, fire or whatever,  
24 could wipe that out, that one genetic format. And  
25 there wouldn't be any resilience to your buffer

1       within the population to respond to that.

2               So, whether we save the big chunks for  
3       -- whether you're going to protect the big chunks  
4       or the small islands, neither has addressed what  
5       the genetic diversity of that population -- how  
6       that's distributed.

7               And I think what Pavlik was saying the  
8       other day was not only is it represented in the  
9       things that we see above ground, but it's also  
10      represented in all the seeds that are in the  
11      ground where the plant actually hedges its bets  
12      against no rain.

13              So my point of all that is that whether  
14      we are looking at preserving big chunks or small  
15      pieces, in the conditions there should still be  
16      the adaptive management approach, remedial  
17      measures, things like this.

18              Because neither one of those approaches  
19      has long-term -- high probability of long-term  
20      success.

21              MR. RATLIFF: Well, if you had to pick  
22      one or the other, which one would you pick?

23              MR. SUBA: Well, okay.

24              (Laughter.)

25              MR. SUBA: That's a fair question. You



1 know, there are two things that you have to  
2 consider, if I'm going to summarize it down, there  
3 are two things you have to consider.

4 Where have the plants shuffled this  
5 cards on the site. Their cards being their genes.  
6 So where are those shuffled. That's number one.

7 And number two, what threats are there  
8 locally to where they shuffled their genes.

9 We can't answer the first question  
10 unless we go out and do that. And there are ways  
11 to approach that. It may take some time, maybe  
12 longer than the applicant would say is feasible.

13 So we don't have the answer to that first  
14 question, where are they shuffled.

15 But in terms of the threats and impacts,  
16 direct and indirect, the better solution would be  
17 to bigger chunks on the edges of the blocks.  
18 First is the small islands.

19 But neither one has a high probability  
20 of success.

21 MR. RATLIFF: We appreciate your point.  
22 Same as Dr. Pavlik's point, too, I think. But the  
23 reality is we don't have the time to do genetic  
24 differentiation. That would not work.

25 And I think staff's view was to try to

1       preserve payloads or small islands would not be  
2       effective over the long term.

3               It seems to be a much more useful  
4       mitigation to try to avoid in the way that we  
5       propose now. And it seems feasible to do that, or  
6       at least we think it is. And it seems like the  
7       benefits would be likely to be much greater, even  
8       though there is uncertainty about the genetic  
9       differentiation of the species that would be  
10      outside of the footprint when the project is  
11      actually realized.

12             So that was how we kind of arrived at  
13      the conclusion we have. It's always, I think, you  
14      know, it would always be better to have perfect  
15      information and be able to -- and more time. I  
16      mean, those things often go hand-in-hand. But  
17      we're operating where we have neither. And this  
18      seemed to be the best way to try to get the  
19      maximum avoidance of the plants with the hope that  
20      you do less long-term damage to them.

21             MR. SUBA: I just wanted to say, I'm  
22      still not -- thank you for that, but I'm not  
23      really clear what we're talking about not doing  
24      anymore inside of the blue square and black oval.

25             MS. LEE: I can explain -- well, the

1 biologist could probably explain it better, but  
2 -- do you want to take a shot at it?

3 The original bio-18 had concepts of  
4 internal avoidance within an overall developed  
5 area so there would be, you know, bunches of  
6 fences around plant populations to preserve them  
7 from being run over or removed or both.

8 So that concept within the new square  
9 would be given up, basically. They would have the  
10 free range to use whatever portion of that without  
11 any internal avoidance because of the benefit of  
12 avoiding everything around the edges.

13 MR. SUBA: Ms. Lee, have you had a  
14 chance to read any of our testimonies?

15 MS. LEE: I've looked through your  
16 testimony, but I'm trying relying on our biology  
17 staff to deal with -- as far as alternatives, yes.

18 MS. CHAINEY-DAVIS: I'm here.

19 MR. SUBA: I wanted to point out that in  
20 our testimony there's a paper that referenced,  
21 that helps point out without looking at the  
22 genetic diversity distribution, this type of  
23 conservation is really not conservation.

24 MS. CHAINEY-DAVIS: May I address that?  
25 This is Carolyn Chainey-Davis. That would be a

1       legitimate argument if your proposed mitigation --  
2       I appreciate what you're saying. And the point  
3       was made by Bruce Pavlik in his comment.

4               His comments also included that any  
5       alteration in the project footprint that leaves  
6       rare plants adjacent to large, undisturbed tracks  
7       of habitat in order to accommodate dispersal is a  
8       better solution than fragmentation and inadequate  
9       or unattempted mitigation, which is staff's point.

10              We appreciate your concern about genetic  
11       diversity and integrity of those occurrences. But  
12       it's a moot point if your plan for avoiding rare  
13       plants within an operating solar facility does not  
14       have a reasonable or proven or reliable chance of  
15       success.

16              So we might as well be throwing the  
17       cards away, under either solution. And I think  
18       that's what Dick was trying to say. And that  
19       comes from not just Bruce, but, you know, other  
20       folks with a lot of experience in mitigation, in  
21       rare plant translocation, et cetera.

22              So we appreciate your intent and agree  
23       that it's an important issue. But it's not going  
24       to work. The proposed mitigation does not have a  
25       proven, tested or even, in the opinion of people

1 with various desert re-vegetation, a reasonable  
2 chance or likelihood of success.

3 So, we go back to the, you know, the old  
4 standard, an old, you know, long-standing standard  
5 in conservation biology, which is that small  
6 preserves are, in the long run, indefensible. And  
7 preserves should be designed with size,  
8 connectivity and landscape integrity in mind. You  
9 know, those are concepts that have been around for  
10 a long time, and are still used by, you know,  
11 nature conservancy and other, you know, large  
12 congregations or land management and preservation  
13 organizations. And, you know, central to the  
14 design of sustainable preserves.

15 We go back to the idea of protecting  
16 large blocks of habitat with species, large blocks  
17 that have and will have the integrity and the size  
18 and the connectivity to be sustainable.

19 Thank you.

20 DR. SANDERS: I had just one thing.  
21 This is Susan Sanders. We would not just abandon  
22 everything in bio-18. There's some other elements  
23 there that we would want regardless of adoption of  
24 a reduced acreage alternative.

25 And that would include protection of

1 adjacent occurrences during active construction;  
2 and surveys for the impact of plants on acquired  
3 and public lands.

4 MS. CHAINEY-DAVIS: Correct. And seed  
5 collection, you know, preservation of the  
6 (inaudible) of the plants that will not be  
7 preserved. In fact, that component of bio-18  
8 would stand, as well.

9 HEARING OFFICER KRAMER: We need to  
10 break for lunch. I'm not sure there is a good  
11 part. This may be a place where the parties can  
12 go and think a little bit about what's been said.  
13 I don't know if --

14 MR. HARRIS: Are we done with the panel,  
15 though? Can I release my witnesses?

16 HEARING OFFICER KRAMER: No, --

17 PRESIDING MEMBER BYRON: No.

18 HEARING OFFICER KRAMER: Commissioner  
19 Byron, among others, has some questions.

20 MR. HARRIS: Fair enough, fair enough.  
21 I'll buy them lunch instead.

22 PRESIDING MEMBER BYRON: That's fair  
23 enough.

24 (Laughter.)

25 MR. POWERS: All right. I will have

1       some questions, too.

2                   HEARING OFFICER KRAMER:   Okay, yes.

3       We're just taking a lunch break.

4                   MR. POWERS:   Oh, okay.

5                   HEARING OFFICER KRAMER:   So let's be

6       back here at 1:10.

7                   (Whereupon, at 12:10 p.m., the hearing

8       was adjourned, to reconvene at 1:10

9       p.m., this same day.)

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1 AFTERNOON SESSION

2 1:14 p.m.

3 HEARING OFFICER KRAMER: Okay, we're  
4 back on the record for the afternoon session.  
5 Several of us, including Mr. Connor and perhaps a  
6 few others, have some more questions.

7 So what I wanted to ask the staff and  
8 the applicant, are you -- do you feel like you've  
9 concluded with this discussion of the alternative?  
10 Or do you want to continue with that? Would it be  
11 fruitful, in other words?

12 MR. HARRIS: I'm sorry, the question is  
13 we let these guys go, are we done with  
14 alternatives?

15 HEARING OFFICER KRAMER: No. No.

16 MR. HARRIS: No. I wish it was. That's  
17 the only question I really wanted to hear, but --

18 HEARING OFFICER KRAMER: Well, maybe  
19 later.

20 MR. HARRIS: Well, what was the question  
21 again? I'm sorry?

22 HEARING OFFICER KRAMER: This path you  
23 were going down discussing the alternative, the  
24 reduced footprint alternative. Do you feel we've  
25 exhausted that or do we have more to talk about



1 with regard to that? And do you have any news  
2 about what, if anything, that's engendered in the  
3 applicant's camp?

4 MR. HARRIS: It's an interesting  
5 concept. Kind of the last day of the hearings  
6 here, though. So, -- and I am concerned about  
7 clarity on exactly what the staff is proposing.

8 I thought the original answer was that  
9 bio-18 would no longer be necessary and the rare  
10 plant plan would no longer be necessary. But it  
11 sounds like there's some nuances to that that,  
12 again, you know, make it an interesting  
13 discussion.

14 But at this point, you know, the project  
15 is defined as it's defined. And this has been a  
16 helpful discussion for us. And we'll take it  
17 under consideration.

18 But we're certainly going to ask that  
19 you close the evidentiary record and proceed with  
20 the project as we have filed it, described it and  
21 defended it here.

22 HEARING OFFICER KRAMER: Do you have any  
23 more to add to clarify the record about the  
24 reduced footprint alternative?

25 MR. HARRIS: I don't have anything to

1       add. I wish I would have had more time to kind of  
2       read some of the written stuff that went along  
3       with the staff's oral testimony. Because I was  
4       much enlightened by the discussion.

5               But, you know, there are some pretty  
6       serious technical issues associated with just, you  
7       know, taking a box, like the box in the middle  
8       there, and moving it up to, you know, the blue  
9       line above.

10              It's been a very interesting discussion  
11       but I think we've exhausted it, I guess is the way  
12       I'd characterize --

13              PRESIDING MEMBER BYRON: I'm not sure we  
14       have.

15              MS. BELENKY: No, I don't think so.

16              PRESIDING MEMBER BYRON: Mr. Kramer, may  
17       I ask a few more questions?

18              HEARING OFFICER KRAMER: I was going to  
19       ask everyone else, but --

20              MR. HARRIS: Well, from our perspective.  
21       I'm sorry. But from the applicant's perspective,  
22       Mr. De Young is exhausted. The rest of you are,  
23       I'm sure, invigorated. But we're going to sleep  
24       after lunch.

25              HEARING OFFICER KRAMER: Commissioner

1       Byron, then.

2               PRESIDING MEMBER BYRON:   Just with  
3       regard to this very topic, and I think the reason  
4       that what Mr. Harris has just said, it really  
5       opened up, I think, when it was Mr. Gilon --  
6       Gilon?

7               HEARING OFFICER KRAMER:   Gilon?

8               PRESIDING MEMBER BYRON:   Gilon was  
9       providing his testimony earlier, I certainly got  
10      the impression that there was some site  
11      optimization that had to take place on Ivanpah 1  
12      and 2.  And that's what enabled the applicant to  
13      increase capacity as much as 10 percent.

14              MR. HARRIS:  Yeah, the optimization  
15      occurred in May of 2008.  I think we're -- kind of  
16      got wrapped around the axle what nominal means.  
17      You know, we've been very careful to try to put  
18      nominal into our documents.

19              PRESIDING MEMBER BYRON:   Okay, so that  
20      didn't have to do necessarily with getting more  
21      capacity out of the existing footprint or the land  
22      footprint?

23              MR. HARRIS:  Correct.  The equipment  
24      hasn't changed.  The design is still the same.  We  
25      know more than we did before, but I mean,

1 Commissioner, as you know, the term nominal is  
2 used in the Energy Commission siting process  
3 because in a gas turbine setting, for example,  
4 they operate different at, you know, different  
5 temperatures, different elevations, that kind of  
6 thing.

7 PRESIDING MEMBER BYRON: No, I find it  
8 very encouraging that you're able to squeeze a  
9 little more blood out of the turnip, if you will,  
10 with this technology.

11 But let me ask you this, though, with  
12 regard to Ivanpah 2, have you done a similar, if I  
13 can use the term, optimization yet for the third  
14 project?

15 MR. HARRIS: No, we have not completed  
16 an optimization view of that. In fact, part of  
17 the reason there are five towers in Ivanpah 3, and  
18 one in the other designs, is that, you know, this  
19 project is trying to advance and moving forward  
20 with a 200 megawatt design necessitates the five  
21 towers.

22 But we are intrigued by the blue line.  
23 I think I can say that. And we'll give it some  
24 serious consideration. But, again, on the last  
25 day of evidentiary hearings here, I --

1                   PRESIDING MEMBER BYRON: Well, we're not  
2 going to ask you to re-design it here during the  
3 evidentiary hearing.

4                   MR. HARRIS: Thank you. Okay, that's  
5 kind of where I was --

6                   PRESIDING MEMBER BYRON: But I think  
7 this question certainly came up in my mind a  
8 couple of days ago. And now that we have the  
9 additional testimony of staff, and the efforts  
10 that went into, I don't know, Ms. Lee, how to  
11 characterize what you've done, an effort to  
12 optimize the resource of rare plants from your  
13 perspective.

14                   Was it pretty much based upon this  
15 notion that they could use a smaller footprint to  
16 get nearly the same amount of power?

17                   MS. LEE: We tried to stay away from  
18 trying to characterize the amount of power that  
19 would remain because there are a lot of  
20 engineering factors to that, and --

21                   PRESIDING MEMBER BYRON: And a lot of  
22 financial factors come into it, --

23                   MS. LEE: -- yeah, and a lot of  
24 financial factors.

25                   PRESIDING MEMBER BYRON: Whether or not

1 the project is viable.

2 MS. LEE: But the point that you raised  
3 is something that we definitely have had in mind,  
4 which is that there seems to be at least this sort  
5 of 10 percent variation on is it 400 megawatts or  
6 440. And that it did appear. And I think this  
7 was a component of the thinking in terms of losing  
8 some land to preserve some resources is that it  
9 may not be much of a loss from 400 megawatts; 440  
10 came in later in the game.

11 PRESIDING MEMBER BYRON: Well, that's  
12 where my question primarily centered, was on this  
13 notion of the -- and, again, if you'll just allow  
14 me to use the word optimization. We just sworn in  
15 two new Commissioners this morning. And  
16 Commissioner Boyd is going to have to suffer the  
17 fact that now there are three engineers --

18 (Off the record.)

19 PRESIDING MEMBER BYRON: And so I can  
20 appreciate that particularly with the technology  
21 that's being developed in a new large application  
22 like this, you have to have a pretty good sense of  
23 where you're going when you go for your power  
24 purchase agreement. And now it's time to build  
25 this thing and design it, you know. We're not

1        talking about the 90 percent design, we're talking  
2        about the 100 percent design.

3                And so where are these -- the  
4        optimization, maybe it would be better to use like  
5        the example of an airplane, where Boeing makes the  
6        commitment to their customers they're going to get  
7        a certain fuel mileage on a new airplane they  
8        haven't built yet. If they don't hit that number  
9        they're in a lot of trouble.

10               And they start looking for -- yeah, they  
11        lose schedule, they've lost two years. Or you  
12        lose, you start taking things off the airplane.

13               So, you know, it's this kind of thing  
14        that's very challenging. And they may not have a  
15        project, just discussing the airplane now, you  
16        know, that a lot of customers are interested in.

17               So I think there's that same kind of concern  
18        we can't get into that level of detail here.

19               But with regard to optimization, let me  
20        just see, is there a direct correlation then to  
21        the size of the area? Can you get more power -- I  
22        don't know how to ask the question -- can you get  
23        the same amount of power out of a smaller area?

24               We're talking about Ivanpah 3. Can you  
25        get the megawatts out of that area that you need

1 if it were smaller?

2 MR. DE YOUNG: Well, the way that I'm  
3 looking at that figure 3 right now, it appears  
4 that the blue hash-mark line represents a 100  
5 megawatt project. So I would say that if we can  
6 use Ivanpah 1 and 2, as we say, optimize the 107  
7 or 110 megawatts, that project looks to me like a  
8 330 megawatt project.

9 MR. HARRIS: Let's be clear, though.

10 PRESIDING MEMBER BYRON: That's a good  
11 off-the-cuff answer, thank you.

12 MR. HARRIS: I'm sorry, Commissioner, I  
13 didn't mean to interrupt. I want to be clear,  
14 though, staff also has, in addition to the blue  
15 box, they've got this circle at the bottom where  
16 we lose about 25 percent of 1. So that is less  
17 than 300 megawatts if you just assume that the new  
18 3 is 100. It's, you know, 100, 100 and some  
19 fraction of 100 for the loss of the northern, I  
20 guess I'll just say the upper left-hand corner  
21 there.

22 PRESIDING MEMBER BYRON: I accept that,  
23 too. I don't want you to get into having to re-  
24 design it. It's just, obviously you lose  
25 megawatts.



1 MR. HARRIS: Absolutely.

2 PRESIDING MEMBER BYRON: Commissioner, I  
3 see that you indicated by turning your microphone  
4 on you have a question or two.

5 ASSOCIATE MEMBER BOYD: Well, just a  
6 couple comments. One is it's the first time you  
7 ever used a non-engineer barb at me, so. We're  
8 Cal and Stanford; we get at each other all the  
9 time. But as he knows, I took a good three years  
10 of engineering, in addition to my other work, so  
11 you guys can't totally pull the wool over my eyes,  
12 Mr. Rubenstein (inaudible).

13 You and I apparently have somewhat the  
14 same impression. I just wanted to reinforce your  
15 question that the testimony the other day  
16 indicated, and I'll take up your word,  
17 optimization, but that the two areas were  
18 optimized and we ran out of time to optimize the  
19 third.

20 Well, I thought that's what I heard and  
21 that's why I'm asking the question. I thought I  
22 heard ran out of time to optimize area three.  
23 But, by the same token, when you allocated the  
24 extra 40 megawatts you kind of distributed 10  
25 percent each, or 10, 10 and 20 to the three areas.

1                   So I must say that's my -- I could be a  
2                   little confused and now would be a good time to  
3                   straighten me out.

4                   MR. DE YOUNG: It's not my understanding  
5                   that we ran out of time with regard to Ivanpah 3,  
6                   a 200 megawatt project, I believe that our  
7                   engineering team in Jerusalem feels that the five-  
8                   tower design is what they can live with, what they  
9                   have to live with in order to make a 200 megawatt  
10                  project. That this is and should be considered  
11                  optimized.

12                 When we went back and took a close look,  
13                 in the spring of 2008, and took Ivanpah 1 and 2  
14                 from three towers each on each one of those sites  
15                 down to one, the reality was that is optimized.  
16                 And for Ivanpah 3 there's no way to take it to a  
17                 200 megawatt project with less than five towers.

18                 ASSOCIATE MEMBER BOYD: Okay, thanks.

19                 PRESIDING MEMBER BYRON: And we  
20                 recognize there's a lot more than just, you know,  
21                 using megawatt numbers here. There's sizing of  
22                 plant equipment and optimizing of plant efficiency  
23                 and all that. So please don't infer that we're  
24                 going to make a decision to say you get X percent  
25                 of 100 percent -- because I recognize that you

1       can't necessarily do it that way.

2               Also comment made earlier about the  
3       financial implications of all of this for putting  
4       your project together, so please don't take  
5       anything away from that. We're really just trying  
6       to explore more deeply the evidence that we heard  
7       this morning with regard to a very interesting --  
8       with regard to how we could optimize -- how we  
9       could preserve the resources that -- you used the  
10      word resources earlier, rare plants, the native  
11      vegetation.

12              MR. RATLIFF: Commissioner, I think the  
13      applicant was mentioning before the break that by  
14      increasing the tower height by some additional  
15      measure they could get further megawatts out of  
16      the current power towers that they have.

17              PRESIDING MEMBER BYRON: Yes. Ms. Chew  
18      and I were up in my office, actually with little  
19      reflectors at lunchtime --

20              (Laughter.)

21              PRESIDING MEMBER BYRON: -- get the  
22      angles closer together ourselves.

23              MR. DE YOUNG: One thing I'll note about  
24      the increased tower height is that it definitely  
25      would need to be reviewed by the FAA. As it

1       currently stands, there was refined analysis was  
2       required for two of the towers up in Ivanpah 3,  
3       that they were very close to the limit of being a  
4       hazard to --

5               PRESIDING MEMBER BYRON:   Is there a  
6       precise number for that limit?

7               MR. HARRIS:   Commissioner, our  
8       understanding is that at 500 feet you kick into a  
9       different process at FAA.   So it's kind have been  
10      for applicant's a Maginot Line, one they want to  
11      avoid.

12              So that's why you wouldn't want to go to  
13      499, but again, we're at 460 --

14              MR. DE YOUNG:   At 469 including a ten-  
15      foot lightning rod.

16              MR. HARRIS:   That's at the top of the  
17      lightning rod, it's 469.

18              PRESIDING MEMBER BYRON:   -- number of  
19      other comments --

20              MR. HARRIS:   Yeah, maybe heard that,  
21      yeah.

22              MR. RATLIFF:   Commissioners, I think  
23      it's premature, perhaps, I mean it could sound  
24      premature to talk about this, but I think it's  
25      essential to have some discussion of it.   And I

1 know I've shared some thoughts with Jeff about  
2 this in the past.

3 But I think it's possible if the  
4 Commission were to decide it wanted to approve an  
5 alternative configuration within the footprint, I  
6 think that our procedure is flexible enough to let  
7 that happen.

8 And I think it's very possible that it  
9 could allow it to happen in a timeframe that would  
10 allow all portions of the project to qualify for  
11 ARRA funding. It might involve using the  
12 regulations that we have for severance of the  
13 projects such that we would go ahead and make a  
14 decision, the Energy Commission would make a  
15 decision on phases 1 and 2; sever the third  
16 portion for some additional analysis. And then  
17 make a decision on the third portion separately  
18 under a docket that included the, as reference,  
19 two prior dockets, but would have additional  
20 material that pertained only to phase three.

21 So I just wanted to say, I mean, if this  
22 wouldn't work procedurally I don't think we should  
23 consider it. But I think it can work procedurally  
24 and I just wanted to emphasize that it's not  
25 impossible to do this if you want to go there.

1                   ASSOCIATE MEMBER BOYD: I'd like to hear  
2                   from the applicant, because I thought I heard  
3                   financing was all or nothing, so procedurally we  
4                   might be able to break it up, but the applicant --

5                   MR. DE YOUNG: We heard from Mr. Woolard  
6                   the other day that that option is not an option  
7                   with regard to financing DOE loan guarantee. That  
8                   there needs to be certainty of that. I just don't  
9                   believe we can look at this as a phased project.  
10                  If the regulations would support that, that's one  
11                  thing. But for project finance, PPA, all of the  
12                  other elements that come into it, it wouldn't  
13                  work.

14                  MR. RATLIFF: I'm skeptical of that. I  
15                  think this has always been a phased project.  
16                  And --

17                  MR. DE YOUNG: Not with regard to  
18                  financing.

19                  MR. RATLIFF: Well, but you see, I mean  
20                  whenever we do power plants applicants always say,  
21                  well, you can't do that because of financing.  
22                  It's the big bug-a-boo, and it's behind-the-  
23                  curtain analysis, you know. Nobody knows what  
24                  that means.

25                  Like I say, I don't think that extending

1 the process for a small additional increment of  
2 time necessarily should jeopardize anything about  
3 your project, frankly.

4 MR. DE YOUNG: Well, I disagree.

5 MR. HARRIS: Let me just say something  
6 positive, Dick. I agree with your statement that  
7 I think you can do things within the existing  
8 footprint of what we've got up there, all three.  
9 The project as it is before the Commission. I  
10 agree with that.

11 I think deferring, you know, part of  
12 that footprint is effectively going to delay it  
13 past the time we have any chance of making 2010.  
14 So those are our constraints and not yours, as the  
15 lead agency, I understand.

16 But I think from a feasibility  
17 perspective it creates concerns, a lot of  
18 concerns, because, you know, I don't know when  
19 we'd get done and whether we'd be able to start in  
20 2010 if we deferred looking at -- if we just tried  
21 to sever 3 all together, I guess.

22 HEARING OFFICER KRAMER: Well, I'd like  
23 to ask, re-ask the question again in that regard  
24 with severance, if -- and this is maybe -- but in  
25 this timeframe, if this is expected for this

1 application. The answer from the Commission was  
2 that you were approved for a project on the  
3 reduced footprint. Is that finance-able and  
4 build-able?

5 MR. HARRIS: Well, I've got several  
6 criteria that come to my mind to respond to that.  
7 What are we balancing here, I guess, is the  
8 question.

9 If you're balancing such that the staff  
10 decides that a different configuration has no  
11 significant impacts. And they find that there's  
12 LORS compliance to the different configuration.  
13 That's of value to the applicant.

14 But to have the staff say we want a  
15 smaller project and it's still significant just  
16 results in a smaller project with fewer megawatts.  
17 And so, determining whether there are significant  
18 impacts and how significant they are, even if  
19 there's LORS compliance with that, that's a big  
20 deal. And it requires us to speculate at this  
21 point.

22 And then, you know, I guess at some  
23 point, and we don't want to be here all night, but  
24 I wonder if it gets us anything with the folks  
25 sitting to my right, the intervenors here.



1                   So, you know, if my tradeoffs are  
2                   smaller footprint, still significant impacts,  
3                   still a LORS issue and still complete opposition  
4                   from the other side of the room, that's no bargain  
5                   we're even considering.

6                   But having said that, that's speculation  
7                   that that would be the result.

8                   MS. BELENKY: I'd just like to ask a  
9                   procedural point. I think this is a really  
10                  interesting discussion. I'm not sure if it's --  
11                  how it's evidence, exactly? Factual evidence.

12                 So I'm trying to understand if we're in  
13                  some sort of settlement discussions. Would that  
14                  be appropriate during an evidentiary hearing?

15                 HEARING OFFICER KRAMER: Some of what  
16                  Mr. Harris said is -- in fact, most of what he  
17                  said, if not all of it, is in the nature of  
18                  argument. And as we said yesterday, we're going  
19                  to -- if we have time today, you know, we're going  
20                  to offer an opportunity for the parties to just  
21                  summarize their concerns briefly to give the  
22                  others a heads-up for the next step, which will be  
23                  preparation of briefs.

24                 PRESIDING MEMBER BYRON: Also, as you  
25                  pointed out to me, Mr. Kramer, when we get into

1 alternatives discussion it's like going through  
2 all the topics again to some extent. So I  
3 wouldn't characterize this as any effort to try  
4 and settle here at all. We're trying to  
5 understand these alternatives.

6 MS. BELENKY: I agree with you. I  
7 completely agree that alternatives touches on  
8 every other issue. I just wanted to make sure I  
9 understood what was going on in the discussion at  
10 this point, because it seemed to me that there was  
11 some testimony being taken from the applicant's  
12 attorney. And I was confused.

13 MR. HARRIS: I completely accept the  
14 groundrule that anything the lawyers say during  
15 this time is not evidence, which is why sometimes  
16 it takes us awhile to tee up a question, you and  
17 I, both. That's not evidence in my mind at all,  
18 because we're not under oath.

19 HEARING OFFICER KRAMER: Okay, do we  
20 have any other questions that relate to this  
21 particular reduced acreage alternative?

22 Mr. Connor, were your questions along  
23 those lines, or some other lines?

24 DR. CONNOR: Sorry, -- could you repeat  
25 that?

1 HEARING OFFICER KRAMER: Were your  
2 questions about the reduced acreage alternative,  
3 or some other alternatives?

4 DR. CONNOR: Oh, no, my question wasn't  
5 about that.

6 HEARING OFFICER KRAMER: Were or were  
7 not?

8 DR. CONNOR: It was not.

9 HEARING OFFICER KRAMER: Okay. Then  
10 we'll get to you in a few minutes. Any other  
11 questions from the parties about the reduced  
12 acreage alternative?

13 Okay, --

14 PRESIDING MEMBER BYRON: One last  
15 question, Mr. Kramer. And forgive me, the staff's  
16 biologist, is she still with us on the phone? Or  
17 Ms. Sanders.

18 DR. SANDERS: Yes, --

19 MS. CHAINEY-DAVIS: Carolyn Chainey-  
20 Davis. The botanist. I'm here --

21 (Parties speaking simultaneously.)

22 PRESIDING MEMBER BYRON: Okay, well, I  
23 just open it up because I wanted to just ask the  
24 applicant, I think we had a comment earlier about  
25 the alternative that was suggested here as shown

1       by this figure that's currently up before us, the  
2       reduced alternative.

3               That it reduces impact on vegetation.  
4       But I'm not sure if we got to whether or not it  
5       reduces impact on desert tortoise and other  
6       wildlife.

7               MS. LEE: I think Susan Sanders can  
8       speak to that.

9               DR. SANDERS: It would, smaller is  
10      better. Smaller would have fewer impacts to  
11      desert tortoise. Get a little more room between,  
12      because of all the mountains and the project, so  
13      it's already better for wildlife movement. It  
14      still wouldn't reduce impacts to desert tortoise  
15      to less than significant, but our mitigation  
16      measures do that.

17              PRESIDING MEMBER BYRON: Thank you.  
18      I'll keep it short. That's all I needed, thank  
19      you.

20              HEARING OFFICER KRAMER: Okay, then, Mr.  
21      Connor, why don't you go ahead with your  
22      questions.

23              DR. CONNOR: Okay. I've got a couple of  
24      questions for Dr. Sanders -- couple questions, and  
25      then maybe the panel can jump in on that. Then I

1       also have some questions for Ms. Lee, which I can  
2       either ask a little later, depending on how the  
3       discussions goes. Or I could just carry on after  
4       I ask my questions to Dr. Sanders.

5               HEARING OFFICER KRAMER: Go ahead, and  
6       if you start a whole new topic, I might stop you  
7       and postpone the rest of your questions. But, go  
8       ahead.

9               DR. CONNOR: Yeah, they are basically  
10       two sort of separate topics. I'll start with my  
11       questions for Dr. Sanders. These relate to the  
12       maps shown in the testimony, it's the USGS habitat  
13       models shown on page 19 of the staff rebuttal  
14       testimony.

15              DR. SANDERS: Okay.

16              HEARING OFFICER KRAMER: Are you on a  
17       speaker phone?

18              DR. CONNOR: Yes.

19              HEARING OFFICER KRAMER: It would be  
20       easier to understand you if you used a handset or  
21       a headset.

22              DR. CONNOR: Okay, I can try. Hello.

23              HEARING OFFICER KRAMER: Much better.

24              DR. CONNOR: Okay, sorry. Okay, the  
25       figure that I'm looking at is labeled figure 5, is

1       that correct, we both have figure 5?

2               DR. SANDERS: That's right.

3               DR. CONNOR: The USGS model. And this  
4       map shows the USGS habitat model overlaid on the  
5       project area, is that correct?

6               DR. SANDERS: That's right.

7               DR. CONNOR: Okay. Can you explain what  
8       the color coding means on this map?

9               DR. SANDERS: If you consider as warm  
10       colors red and orange being good for desert  
11       tortoise, and cool colors, blue and greens and  
12       yellows, less good, the darker the red and orange  
13       the better the habitat.

14               And this model is based on, I think, 16  
15       variables that integrate soil, slope, vegetation,  
16       perennial and annual vegetation, winter/summer  
17       precipitation, all those factors that are  
18       important to desert tortoise, and comes up with a  
19       map showing what is good and what is not  
20       beneficial.

21               DR. CONNOR: Okay. And this, to my  
22       understanding, is based on a one kilometer -- is  
23       that correct?

24               DR. SANDERS: I don't know.

25               DR. CONNOR: Okay. If you look at the

1 map, look at the Ivanpah 3 site.

2 DR. SANDERS: Yes.

3 DR. CONNOR: It looks like sort of a  
4 dark orange color on my map. I don't know how it  
5 looks on yours.

6 DR. SANDERS: Yeah, it does on ours, as  
7 well.

8 DR. CONNOR: Okay. Just to the west of  
9 Ivanpah 3 is translocation N-1 site.

10 DR. SANDERS: Right.

11 DR. CONNOR: Okay, is the habitat, the  
12 translocation N-1 site of less quality than the  
13 Ivanpah 3 site?

14 DR. SANDERS: Yes.

15 DR. CONNOR: It is?

16 DR. SANDERS: According to the colors  
17 here, that's right.

18 DR. CONNOR: Okay, and is that also true  
19 of the other data that you collected for the  
20 translocation site N-1?

21 DR. SANDERS: I'm sorry, your question  
22 is are the other translocation sites better  
23 habitat?

24 DR. CONNOR: No, no, no. Translocation  
25 site N-1. I was under the impression that these

1 translocation sites were comparable habitat 2-B,  
2 the area that the tortoises will be translocated  
3 from.

4 DR. SANDERS: I think that -- are you  
5 talking about the conclusions that were in the  
6 descriptions, the vegetation descriptions and the  
7 surveys that were done by the applicant for the  
8 translocation sites?

9 DR. CONNOR: Yes. And also, I think,  
10 the conclusions that were reached by the Fish and  
11 Wildlife Service.

12 DR. SANDERS: Yes. So did I answer your  
13 question, or did you --

14 DR. CONNOR: Okay, so -- well, yeah.  
15 So, given that, do you think that this model is  
16 applicable to this sort of small scale? Given the  
17 fact that the other evidence that we have would  
18 suggest that the habitat of translocation site N-1  
19 is actually comparable to the habitat of Ivanpah  
20 3?

21 DR. SANDERS: Let me clarify what you're  
22 asking from me -- of me. Are you saying we should  
23 not be using -- you think it's a good idea to use  
24 this kind of USGS mapping to assess habitat  
25 quality on this scale? Is that what you're asking



1 me?

2 DR. CONNOR: Yeah, yeah, exactly.

3 DR. SANDERS: I think it's better to  
4 have field data.

5 DR. CONNOR: Okay.

6 DR. SANDERS: In general. This is just  
7 one of several tools you can use to assess  
8 habitat.

9 DR. CONNOR: Okay, so -- but I thought  
10 in your testimony on Tuesday you were using this  
11 map to try to characterize the habitat in the  
12 Sierra Club alternative area.

13 DR. SANDERS: My point on Tuesday, and  
14 the reason I included this in my rebuttal  
15 testimony was that I wanted to show that the  
16 selection of sample size that was used to evaluate  
17 the I-15 alternative were not necessarily  
18 representative.

19 So the northernmost sample site, which  
20 is kind of near the corral, near the I-15, was  
21 poor habitat. And therefore, not representative  
22 of the 4000-some-odd acres in the rest of the I-15  
23 alternative.

24 DR. CONNOR: Okay, and that has been --  
25 has that been verified by data from on the ground?

1 DR. SANDERS: We had Dick Anderson here  
2 on Tuesday night who did a reconnaissance level  
3 survey. And his assessment was most of the I-15  
4 habitat was fairly good for desert tortoise, but  
5 as you were near the road. And I believe he said  
6 as you got closer to the golf course where there  
7 are lower elevations, where the vegetation  
8 diversity was less, his conclusion based on that  
9 one afternoon, one day's worth of survey, was that  
10 the sample site, also, was not in a representative  
11 location for the rest of the I-15.

12 DR. CONNOR: Okay, so I'm still not  
13 quite clear here. Are you saying that this model  
14 is useful in evaluating the on-the-ground  
15 condition as the Sierra Club alternative?

16 DR. SANDERS: That's not what I was  
17 using this for. I was using this to make my point  
18 that the sampling site was in an unrepresentative  
19 location to really -- a sample site should be  
20 either random or in some way representative of the  
21 remainder of what you're sampling. My point was  
22 using this as evidence that it was not.

23 Among other evidence. The other  
24 evidence being the surveys from the botanist and  
25 the wildlife biologist.

1 DR. CONNOR: Okay. So, you think that  
2 this model is informative as to the Sierra Club  
3 alternative site or not?

4 DR. SANDERS: Well, that wasn't the  
5 purpose of including it in my testimony.

6 DR. CONNOR: I'm sorry, I thought you  
7 raised it in the discussion of the Sierra Club  
8 alternative site.

9 DR. SANDERS: Yes, let me explain it a  
10 different way. My reason for including this was  
11 to say I don't think the sample site that was  
12 selected was representative of the entire 4000  
13 acres site.

14 So, I think -- and is that not clear?

15 DR. CONNOR: You mean the site that was  
16 sampled by Mr. Cashen?

17 DR. SANDERS: Yes.

18 DR. CONNOR: Okay.

19 DR. SANDERS: There were two sample  
20 sites selected. The northernmost one I said was  
21 not very representative, and therefore would give  
22 somewhat skewed results if it was applied to the  
23 entire I-15 alternative site.

24 DR. CONNOR: Okay. And so did the fact  
25 that at least on the local level, the USGS habitat

1 model would be indicative of the habitat on the  
2 ground? Do you understand what I've said? --  
3 sorry.

4 DR. SANDERS: I guess I'm not clear, I'm  
5 sorry. Explain your question again, please.

6 DR. CONNOR: Okay. I didn't complete  
7 the question, I made a statement. I was just  
8 trying to find out -- as far as your evaluation is  
9 concerned, the fact that the USGS habitat model  
10 may not necessarily reflect the conditions on the  
11 ground is not important to your conclusions?

12 DR. SANDERS: Well, no. I think you're  
13 making more of this map than I was. I was just  
14 using this as one way of saying you've got to  
15 choose your sample -- you've got to first explain  
16 how you chose your sample sites, which I'm not  
17 sure was explained very well in the Sierra Club  
18 testimony.

19 And that, two, if you do, you want to  
20 make sure you haven't chosen them randomly. That  
21 you want to offer some rationale as to why it  
22 represents the rest of the site. And my only  
23 point was I don't think it is. And this map  
24 supports my point.

25 I'm not really making conclusions about

1 the model, itself, and what it says about desert  
2 tortoise habitat, at what scale.

3 DR. CONNOR: Okay, but --

4 HEARING OFFICER KRAMER: Mr. Connor, let  
5 me stop you for a minute. We're at a point in our  
6 hearing where we need to increase our -- optimize  
7 our efficiency.

8 DR. CONNOR: Okay.

9 HEARING OFFICER KRAMER: And I'm having  
10 trouble seeing where this is going and --

11 DR. CONNOR: No, my question relates  
12 basically to -- I guess I didn't quite understand  
13 what the point of this map was in the rebuttal.

14 MS. SMITH: If I could just real quick.  
15 The Sierra Club hasn't had a chance to explain how  
16 it did pick its sites. It's waiting for the  
17 opportunity to do so. So, we're sitting over here  
18 silently, hearing how our sites were sampled. And  
19 how it was maybe an erroneous approach. And we  
20 intend to get there.

21 MR. HARRIS: Well, I intend to object  
22 when you try to go there. It's not in your  
23 prefiled testimony. And Mr. Cashen's already been  
24 made available, and he's done his direct  
25 testimony.

1                   MS. SMITH: As you recall the hearing  
2 was shut down in progress on Tuesday night, and  
3 now we're back here to finish.

4                   HEARING OFFICER KRAMER: Mr. Cashen can  
5 certainly respond to the criticism of his work.

6                   MR. HARRIS: Correct. I'm again focused  
7 on not allowing the Sierra Club to introduce  
8 orally testimony about the Sierra Club  
9 alternative, which to me is illusory.

10                  HEARING OFFICER KRAMER: So, Mr. Connor,  
11 I'm still waiting to hear from you what value this  
12 evidence you're trying to develop is going to add.

13                  DR. CONNOR: Yeah, I think I just  
14 misunderstood here. I thought this was introduced  
15 as some kind of rebuttal to the Sierra Club  
16 alternative.

17                  HEARING OFFICER KRAMER: Have your  
18 questions been answered with regard to that?

19                  DR. CONNOR: I think so.

20                  HEARING OFFICER KRAMER: Because if  
21 you're just satisfying a curiosity, we're going to  
22 need to cut you off.

23                  DR. CONNOR: Yeah, okay. Well, I wasn't  
24 satisfying curiosity, I just wanted to -- what I  
25 wanted to know was how this map that was presented

1       actually relates to the conclusions that Dr.  
2       Sanders reached.

3               And I think Dr. Sanders has explained  
4       it.

5               HEARING OFFICER KRAMER:   Okay, so do you  
6       have other questions?

7               DR. CONNOR:   Not of Dr. Sanders.

8               HEARING OFFICER KRAMER:   Along the same  
9       general lines, or --

10              DR. CONNOR:   No, I have questions on a  
11      different area.

12              HEARING OFFICER KRAMER:   Okay.   Does  
13      anybody want to continue this dialogue on the  
14      topic that Mr. Connor raised?

15              Ms. Smith, this may be a good time for  
16      you to allow Mr. Cashen to rebut some of the  
17      criticism of his work.

18              MR. CASHEN:   Yeah, I'd be happy to.  
19      What I just heard from staff, a couple of things  
20      in staff's just recent testimony here, was that  
21      it's better to have field data.   And their concern  
22      about the sampling that I did was that it was  
23      unrepresentative.

24              And that if it wasn't random it should  
25      be in some other way representative of the larger

1 area being sampled.

2 And that there had been no rationale  
3 provided behind the choice of sample sites.

4 So it's kind of two different issues  
5 here and I'll start with just providing my  
6 rationale behind the sites that I selected.

7 We know, in doing any sampling, that  
8 sample size is a very important consideration in  
9 that there's very little power in small sample  
10 sizes. If I had gone out and walked five feet and  
11 provided you with the results of that survey of  
12 five feet of ground, it would be useless.

13 And so going into this I knew that  
14 sample size was a consideration. And my goal was  
15 to be able to sample as much of the two sites as  
16 possible in the amount of time that I had.

17 To do that required maximizing the  
18 amount of time actually in the field collecting  
19 data, instead of driving around and trying to find  
20 where we were going.

21 And so I was faced with the decision as  
22 to whether to try and maximize the sample size and  
23 the amount of data that were collected, or, as  
24 suggested, or has been suggested in some of the  
25 criticism, do a random sample.



1                   And my conclusion was that maximizing  
2                   sample size and collecting as much data as  
3                   possible was more important in this case,  
4                   particularly because I did not have a very good  
5                   understanding of the road system on the site, and  
6                   the road access was limited in a lot of areas.

7                   And my crew was confined to one vehicle.  
8                   And so having them get off to remote locations was  
9                   not a good option in maximizing efficiency.

10                  And so I chose to compromise randomness,  
11                  to some extent, in order to maximize the amount of  
12                  data that we collected. And all of the sampling  
13                  locations, both on the project site and at the  
14                  alternative site, were off of access roads.

15                  If you'll recall there's a road that  
16                  goes along the west side of that mountain there,  
17                  or that hill. And we used that to access the  
18                  sampling location at the top -- my sampling  
19                  locations aren't shown on that map, but there was  
20                  a sampling location just to the west of that hill.  
21                  And there's an access road there.

22                  The other site in the project that we  
23                  sampled had an access road for the utility  
24                  corridor. And then within the alternative site  
25                  the access was off of the road that goes to the

1       golf course. And then also the access road that  
2       sort of parallels the freeway, it goes past the  
3       corral, which I think most people know where that  
4       is.

5               And so that was the rationale behind my  
6       choice. And I stick behind that rationale. I  
7       think it's justified.

8               With respect to the habitat model and  
9       the samples actually falling in areas of lower  
10      quality desert tortoise habitat, I think the point  
11      that Dr. Connor was trying to make is very  
12      important, in that this is just a model.

13              If you look at the map here the model  
14      shows high quality habitat, the dark orange, on  
15      top of the golf course. And we know that the golf  
16      course actually provides no habitat for desert  
17      tortoise.

18              And so there are errors associated with  
19      the model. And as I mentioned in my testimony on  
20      Tuesday, the model does not incorporate human  
21      disturbance factors.

22              To further try and get to the bottom of  
23      this, I actually overlaid a copy of --- or I  
24      overlaid my sampling sites on top of this map  
25      here. And I'm still struggling to find how staff

1 concluded that I sampled in the low quality  
2 habitat, because according to the map that I  
3 generated I actually sampled orange and dark  
4 orange on the project site. And I sampled a  
5 little bit of dark orange and orange on the  
6 alternative site.

7 And, yeah, they're not quite the same,  
8 but they're pretty close. We're talking about a  
9 difference between .8 and .9 on a scale from zero  
10 to one.

11 I've heard that my sampling was skewed  
12 towards low quality habitat and I'm having trouble  
13 finding how that conclusion was made.

14 MR. HARRIS: Can I ask a question about  
15 this map? Is this a predictive model or is this a  
16 sample model?

17 MR. CASHEN: It's a predictive model of  
18 the potential quality of habitat.

19 MR. HARRIS: Okay, but it's not based  
20 upon surveys or anything like that. It's a  
21 prediction of habitat based upon a bunch of  
22 variables, is that right?

23 MR. CASHEN: Correct.

24 MR. HARRIS: Thank you.

25 HEARING OFFICER KRAMER: Any other

1        comments on the sampling issue?

2                    MS. CHAINEY-DAVIS:  Can I -- oh, --

3                    MR. HARRIS:  Just one comment.  There  
4        are some limitations associated with this  
5        particular study that -- are we going to take  
6        official notice of this study so that -- can we  
7        add that to the list of things to take official  
8        notice of?

9                    MS. BELENKY:  Yes.

10                   MR. HARRIS:  Yeah.  Okay.

11                   MS. BELENKY:  The item's on my list.

12                   MR. HARRIS:  It's on Lisa's list, okay,  
13        good.  Thank you.

14                   HEARING OFFICER KRAMER:  So it is going  
15        to be noticed?

16                   MR. HARRIS:  I don't want to take up  
17        your time going through those limitations, but I  
18        do want to be able to brief them if it becomes an  
19        issue.

20                   HEARING OFFICER KRAMER:  Okay.  On the  
21        telephone?

22                   MS. CHAINEY-DAVIS:  Are we still in  
23        informal phase?  Is it appropriate for staff to  
24        comment?

25                   HEARING OFFICER KRAMER:  Yes, but first

1 Mr. Ratliff has a question.

2 MR. RATLIFF: Could someone tell us what  
3 the study is so we know.

4 MS. BELENKY: You put it in the record.

5 MR. RATLIFF: It's the study --

6 (Parties speaking simultaneously.)

7 MS. BELENKY: Where this map comes from.

8 MR. RATLIFF: Okay.

9 DR. SANDERS: This is the applicant's  
10 exhibit; it came with the translocation --

11 MR. RATLIFF: Oh, it's the applicant's  
12 exhibit?

13 DR. SANDERS: This came from you; you  
14 produced the -- it says CH2MHILL at the bottom.  
15 This was part of your submittal when you were  
16 providing information on the translocation.

17 MR. HARRIS: Yeah, and I wanted to make  
18 sure everybody was clear that it's a predictive  
19 model, and not based upon our survey work. Yeah.  
20 And it is a USGS document.

21 MR. CASHEN: It was also used in staff's  
22 rebuttal testimony. And one other thing I just  
23 wanted to make clear, because I think there's a --

24 HEARING OFFICER KRAMER: Briefly,  
25 please.

1                   MR. CASHEN:  -- briefly --  
2           misconception.  I did not sample right next to the  
3           highway.  I was close to the highway, but I was  
4           over 100 feet away from the highway, and it's not  
5           necessarily clear on that image that was provided.

6                   HEARING OFFICER KRAMER:  Okay, from the  
7           telephone?

8                   MS. CHAINEY-DAVIS:  This is Carolyn  
9           Chainey-Davis.  I -- the sort of irony about this,  
10          I guess, is we established earlier that there was  
11          a lot of common ground as to the conclusions which  
12          might simplify for the Commissioners, and that was  
13          that they haven't had down at the lower  
14          elevations, which flattens out.  It doesn't have  
15          the micro-topography, the complexity.  Doesn't  
16          have the species richness or diversity.

17                   We all seem to be in agreement about the  
18          fact that the habitat at the lower elevations  
19          proximal to the golf course was generally of a  
20          lower quality than at the higher elevations.

21                   Sierra Club made that point in their  
22          testimony earlier, as did staff, based on their  
23          field work.  And I think that Susan also -- Dr.  
24          Sanders also pointed out that the vegetation  
25          richness and diversity study that the applicant

1 did also made the same conclusion. And so we're  
2 all sort of in agreement on those points.

3 Where -- we might disagree as to, you  
4 know, exactly where between low and high elevation  
5 that transition occurs. But, in general, I think  
6 we're in agreement and, you know, you can correct  
7 me if I'm wrong.

8 But to simplify it for the  
9 Commissioners, without getting into a lot of back  
10 and forth about methodology, the habitat at the  
11 golf course is icky. And there is a narrow strip  
12 along the highway, you know, whether it's a few  
13 hundred feet or whatever, somewhere in that range,  
14 is of a lower quality.

15 The staff's not disagreeing with the  
16 Sierra Club about that.

17 HEARING OFFICER KRAMER: Okay, well,  
18 rather than getting into another round of  
19 nuancing, I think we're at the position we were on  
20 the other topic earlier, where to the extent  
21 there's disagreement, neither of you is going to,  
22 with further speaking, cause the others to change  
23 their position.

24 We're actually assigned the job of  
25 deciding these sort of disputes, and we will take

1       that on and we'll come to a conclusion based on  
2       all the information you've given us, for which we  
3       thank you.

4               Ms. Smith, did you achieve your goal of  
5       making the points you were --

6               MS. SMITH: Let's see. I think that  
7       sort of finishes off where we were mid-stream on  
8       Tuesday night. I think we have a couple of  
9       questions of staff. Maybe just --

10              HEARING OFFICER KRAMER: Okay. Is this  
11      on the Sierra Club alternative again or --

12              MS. SMITH: It's on alternatives. Yes,  
13      it has to do with the Sierra Club I-15  
14      alternative.

15              HEARING OFFICER KRAMER: Okay, well,  
16      please go ahead and --

17              MR. HARRIS: We're mixing those up  
18      again. Which one is it about?

19              MS. SMITH: It's on alternatives, thank  
20      you, Mr. Kramer.

21              MR. HARRIS: Is it on -- no, seriously,  
22      is it on the I-15 alternative?

23              MS. SMITH: Can you -- can you --

24              HEARING OFFICER KRAMER: I think Mr.  
25      Harris has a good point. We should try to adopt



1 as our language, to the extent we can, the terms  
2 that staff used to describe the various  
3 alternatives in the FSA.

4 MS. SMITH: Fair enough. This has to do  
5 with habitat within the I-15 parameters.

6 HEARING OFFICER KRAMER: Go ahead.

7 MR. CASHEN: This morning, before lunch,  
8 we had talked about figure 2 in staff's rebuttal.  
9 And maybe we can pull that up. Thank you, Ms.  
10 Lee.

11 What I heard staff say this morning was  
12 that part of the rationale behind what was  
13 provided here by staff in the yellow box as a  
14 possible reconfiguration of the project, was to  
15 avoid the density and diversity that was located  
16 further to the south, is that correct?

17 MS. LEE: Yeah, I would say that that  
18 yellow box is not precisely located. It was very  
19 generalized, but that is definitely the idea.

20 MR. CASHEN: Okay. Dr. Connor had  
21 mentioned that the vegetation sampling that had  
22 occurred at the desert tortoise relocation areas.  
23 And actually the relocation areas were originally  
24 proposed for land along the freeway. And those  
25 areas were surveyed by the applicant, actually, as

1 the first iteration in determining whether they  
2 were suitable for desert tortoise.

3 And they surveyed lands south of what's  
4 shown in the figure here, or south of the yellow  
5 box. And they concluded with the data that that  
6 area did not provide the species richness in  
7 abundance that was comparable to the project site.  
8 And thus the translocation area that was T-2,  
9 which would be south of that, was rejected by the  
10 California Department of Fish and Game as a  
11 possible translocation area.

12 And so I'm wondering how come that box  
13 does not extend further south into that area that  
14 was deemed unsuitable for translocation, and that  
15 had low -- had quantitative data that showed it  
16 had low diversity.

17 MS. LEE: Maybe I can put another figure  
18 up there. What that box was really based on --  
19 and there was a lot of -- well, maybe not enough,  
20 but there was a fair amount of discussion of this  
21 on Tuesday night -- is the elevation. What our  
22 biologists, and Carolyn Chainey-Davis can talk  
23 about this more, our botanist and the applicant's  
24 botanist had found fairly consistently across the  
25 site was there was a clear distinction in habitat

1       quality above and below about 2800 feet of  
2       elevation.

3               So we, in making that box, really that's  
4       what we were going for. This was not a tortoise-  
5       focused exercise. The exercise for us really was  
6       focused on rare plants, in terms of the  
7       alternative. Because the tortoise mitigation was  
8       considered to be fully mitigated. There was a lot  
9       of separate discussion about that.

10              But, the exercise for this alternative  
11       really is focused on rare plants, and not on  
12       avoiding tortoise habitat because it is all pretty  
13       good tortoise habitat. There's certainly  
14       variations within it, and there's disagreement  
15       among everyone who's been out there about exactly  
16       where that is.

17              But that 2800-foot contour -- and we do  
18       have that on another map I can put up -- is what  
19       we were really focusing on as a way to, with most  
20       likelihood, reduce the effects on rare plants.

21              MR. CASHEN: I see. My interpretation  
22       of staff's comments in the testimony and the  
23       rebuttal testimony was that there was a high  
24       correlation between plant diversity and rare plant  
25       occurrence.

1                   And there was quite a bit of discussion  
2                   about how that changed, and that sort of where the  
3                   2800-foot contour line discussion evolved.

4                   However, the area that I'm referring to  
5                   south of what's shown on the figure here, where  
6                   the applicant would conduct its surveys and found  
7                   low diversity, those sites were at about 2950  
8                   feet, which is -- well, it's 150 feet higher.

9                   So I'm still sort of struggling to find  
10                  out how that conclusion was made.

11                 MS. CHAINEY-DAVIS: Because the -- oh,  
12                 I'm sorry, this is Carolyn Chainey-Davis -- the  
13                 habitat assessment for rare plants isn't based on  
14                 species diversity and richness. It's based on  
15                 lots of things. And it varies depending upon the  
16                 species.

17                 And I think we made that clear in our  
18                 testimony that it's, you know, we took into  
19                 account, particularly for some of the rare plants  
20                 associated with the site, topographic features and  
21                 hydrology and soil texture and type and things  
22                 like that were just as important.

23                 The species diversity is not a predictor  
24                 of rare plant occurrence. When you're looking for  
25                 where rare plant occurrence, first of all you have

1 to have some, you know, basis of understanding of  
2 the sort of general and micro-habitat preferences  
3 for the species.

4 And then what we did was we -- back to  
5 about eight or ten rare plant sites immediately  
6 adjacent to the project area.

7 Susan Lee, could you bring up figure 12  
8 of the rebuttal testimony?

9 Anyway, when he --

10 MS. LEE: I have figure 6 up there right  
11 now, Carolyn, but I can put up figure --

12 MS. CHAINEY-DAVIS: Right, okay, but --

13 MS. LEE: Okay, sure, yeah, yeah, that's  
14 a good one.

15 MS. CHAINEY-DAVIS: Yeah. So that will  
16 show you the sites that we navigated to in order  
17 to get to, you know, we had to get to reference  
18 populations of rare plants that occurred, you  
19 know, in immediate proximity of the I-15  
20 alternative site.

21 And, you know, collected information,  
22 you know, and got a good search image for the  
23 general and micro-habitat purposes for the  
24 species. And, again, it's not just based on --  
25 it's not based on vegetation cover density. And

1       it's not based on species richness.

2               Although there is a correlation between  
3       the habitat that supports rare plants and the  
4       habitat -- and the cactus and succulent diversity,  
5       for example.

6               But even with that, you know, within  
7       that larger area there are some areas where if you  
8       were to sample them, they might have a low  
9       diversity because of the density of washes,  
10      ephemeral washes through that site.

11              If you were to sample the site that was  
12      criss-crossed with ephemeral washes you might  
13      have, particularly in the summer and winter when  
14      the annuals are dormant, you might have fairly low  
15      diversity, you know, because the vegetation has  
16      been scoured away.

17              And I particularly recall that your  
18      second sampling site within the project area was  
19      an area -- in fact, I double-checked it on the  
20      aerial photo -- it was an area that was -- that  
21      consisted of or included a lot of ephemeral  
22      washes.

23              And so I would expect that area to have  
24      low diversity. But that, by no means, is an  
25      indicator of the entire site. It's just, you

1 know, part of the natural variation within a large  
2 area.

3 So, anyway, yes, the species richness  
4 and diversity is not the predictor for rare  
5 plants. It was based on a number of variables  
6 that were important to those rare plants like  
7 hydrology, for example -- I'm sorry, the Mojave  
8 milkweed is one that prefers sandy washes and  
9 sandy alluvials.

10 There are other species that prefer, you  
11 know, rocky, you know, interflues between the  
12 washes, more rocky flat and slopes. So, yes, this  
13 isn't about species diversity and richness.

14 MR. CASHEN: Okay, so I apologize, I  
15 misunderstood the testimony. And I apologize to  
16 the Commissioners for belaboring this point, but I  
17 think it's pretty important that we discuss how  
18 these assessments were done.

19 And so I do actually have a couple of  
20 questions for you about that. You said that  
21 species diversity was not the factor that  
22 determined rare plants.

23 What are the factors that determine the  
24 occurrence of the species of concern here?

25 MS. CHAINEY-DAVIS: Well, I just

1 described some of them, but -- and it's also very  
2 clear in the testimony. Hydrology and topographic  
3 features, presence or absence or abundance of  
4 desert washes, rocky outcrops, conditions of the  
5 playa, elevations. You know, condition on the  
6 alluvial fan. Some other species, the  
7 (inaudible), and it prefers hanging out at kind of  
8 a mid-point on an alluvial fan.

9           Whether the soils are, you know,  
10 residual or bedrock versus, you know,  
11 unconsolidated or poorly consolidated. We did  
12 look at plant community and species composition as  
13 one of the variables. It was, by no means, the  
14 only one.

15           So, you know, dominant and associated  
16 species which are a part of the reflection of the,  
17 you know, micro-habitat parameters that I just  
18 described.

19           And then, of course, habitat  
20 disturbance, you know, if it's degraded by -- and  
21 an abundance of endangered species, you know, that  
22 are detectable that time of year. Although a lot  
23 of it are actually detectable most any time of the  
24 year.

25           But those were the important ones. And



1       for a lot of those rare plants, hydrology and, you  
2       know, soil and topography is a big one, is a  
3       really important habitat feature.

4               Does that answer your question?

5               MR. CASHEN: I think so. I'm still  
6       trying to understand how those variables relate to  
7       the species that we're talking about that are  
8       known to occur in the area.

9               Because I did a very thorough review of  
10      the literature, and what I thought was clear in  
11      the literature was that there's not a lot known  
12      about these plants.

13              And so I'm just trying to figure out how  
14      we know that those variables that you mentioned  
15      are actually predictors of occurrence.

16              MS. CHAINEY-DAVIS: Oh. Well, that's  
17      based on -- yeah, when you're doing rare plants --  
18      this is -- rare plant surveys, you know, you can  
19      start with a sort of general literature review.  
20      And you won't find much. It's true, you won't  
21      find much in the literature about species that are  
22      not listed species.

23              But that doesn't mean that they're not  
24      well understood by the local experts, you know, by  
25      the people that are intimately familiar with the

1 species.

2 And so, you know, whenever I'm doing a  
3 habitat assessment or a review of a siting case,  
4 or rare plant survey, it always starts with -- you  
5 know, it might start with the literature, that  
6 might be step one. But the important step is --  
7 the important two steps are, you know, contacting  
8 the recognized local experts in the flora of that  
9 region, whether it's, you know, members of  
10 California Native Plant Society or local  
11 consultants or whatever. And inquiring about  
12 their micro-habitat preferences.

13 And then secondly, the important,  
14 probably as or more important, is to navigate to a  
15 reference population. And that's an important  
16 step that's included in all the agency and CNPS  
17 protocol. You navigate back to reference  
18 populations as close to the site as possible and  
19 get a read on the habitat conditions at the  
20 reference population. And that'll tell you a lot  
21 about, you know, where you can expect to find that  
22 species.

23 So, this particular project was ideal in  
24 that respect, in that it, you know, I didn't have  
25 to, you know, navigate to, you know, some remote

1 rare plant reference site, or, you know,  
2 population up in the Clark Mountains somewhere.

3 I had, you know, dozens, if not  
4 hundreds, that I could look at that were  
5 immediately adjacent to the I-15 alternative.

6 So, that's pretty much how you -- that  
7 is, you know, the recognized or accepted way of  
8 doing habitat assessment for rare plants. And  
9 then it's not based on, you know, percent cover  
10 like 5 percent or something like that. Those  
11 aren't the predictors.

12 HEARING OFFICER KRAMER: I'm hearing a  
13 lot of things that I heard before now, so we're  
14 starting definitely to repeat ourselves. Is there  
15 some new theme that you need to explore, Mr.  
16 Cashen?

17 MR. CASHEN: I suppose. Actually I have  
18 some questions for -- some additional questions on  
19 the field work that was conducted. And I'll try  
20 and shift over to desert tortoise, some desert  
21 tortoise questions, and try and be as brief as  
22 possible.

23 But, just for both, were there any  
24 quantitative measurements taken in the field?

25 MR. ANDERSON: This is Dick Anderson.

1       The work that I did out there was qualitative. I  
2       did jot down some values, score for habitat  
3       quality. But it was subjective, qualitative  
4       study.

5                   Is that what you were interested in?

6                   MR. CASHEN: Yes, both for the plant  
7       surveys and the desert tortoise habitat surveys.  
8       There were some variables listed, and I was just  
9       curious if that was all just subjective. And so I  
10      think you answered my question.

11                  MS. CHAINEY-DAVIS: For plants, when  
12      we're making qualitative or quantitative  
13      assessments about percent cover, based on, you  
14      know, visual estimates, I have a -- I calibrate  
15      those estimates with sample cover density charts.  
16      That's, you know, sort of standard when you're  
17      doing wetland delineations and other, you know,  
18      vegetation.

19                  They're not based on transit data, but  
20      are based on, again, visual estimates of cover.  
21      So I try to calibrate them to sample density  
22      charts.

23                  But, again, you know, whether it's --  
24      for rare plants whether it's, you know, 7 percent  
25      cover or 10 percent cover or 9 percent or

1           whatever, is not a predictor for plant occurrence.

2                       For most of these species it has more to  
3           do with topographic features and hydrology and  
4           substrate.

5                       HEARING OFFICER KRAMER: Did you conduct  
6           some of the sampling in this case?

7                       MS. CHAINEY-DAVIS: Are you talking to  
8           me?

9                       HEARING OFFICER KRAMER: Yes.

10                      MS. CHAINEY-DAVIS: Oh, yes, um-hum.

11                      HEARING OFFICER KRAMER: Okay.

12                      MS. CHAINEY-DAVIS: I did, I did.

13                      MR. CASHEN: All right, at risk of  
14           having the Commissioners mad at me, I will try and  
15           stay away from the plants as much as possible.

16                      But on, I don't even remember if it was  
17           Monday or Tuesday, but we heard Dr. Sanders, and I  
18           realize there's two Dr. Sanders, so Dr. Sanders  
19           from UC Herbarium, talk about Mojave milkweed.  
20           And the question he was asked was what is the  
21           limiting factor for Mojave milkweed.

22                      Because he had stated that solaridity was  
23           generally not considered a limiting factor. And  
24           he discussed water availability and actually  
25           stated that there was less water available to that

1 plant, and to plants in general, as you moved  
2 further downslope, i.e., towards the freeway.

3 And so if similarly there's water  
4 availability is a limiting factor for other of the  
5 species of concern, one would infer that the  
6 farther you got away from the hill, the less water  
7 and the less likely there was change of  
8 occurrence.

9 MS. CHAINEY-DAVIS: Yes, and that 's  
10 completely in alignment with what staff's  
11 conclusion.

12 MR. CASHEN: Okay, great. And then as  
13 far as the desert tortoise habitat assessment,  
14 staff had mentioned something about the corral and  
15 the golf course, or the corral not being desert  
16 tortoise habitat, or can you clarify that?

17 MR. ANDERSON: Yeah, I'm not sure  
18 exactly what I said, but what I, you know, found  
19 with that, there was high quality habitat in both  
20 sites. Some of it was actually spectacular.

21 But for tortoise it all seemed good, you  
22 know, it was all high quality even though there  
23 was differences in the vegetation.

24 And I did say that I saw evidence of  
25 light grazing throughout both sites. On the lower

1 site the (inaudible) for the Sierra Club study,  
2 which are slightly different. I understand now  
3 one is closer to the highway than what we looked  
4 at.

5 There's an area where there's an old  
6 corral that's pretty beaten down. And I don't  
7 know what the acreage is, maybe 10, 15 acres in  
8 the area that's been affected more by cattle  
9 moving through there than other places.

10 But once you move away from that, a few,  
11 you know, 100 yards or so the habitat's back and  
12 looked good.

13 MR. CASHEN: And you used proximity or  
14 one of your variables was quality of adjacent  
15 habitat. Can you discuss what was considered to  
16 be adjacent?

17 MR. ANDERSON: Yeah, essentially it was  
18 probably a half a mile. The idea was that we  
19 weren't just looking at -- 20 acres for habitat  
20 and then development all around. But that it was  
21 an entire, you know, the whole area was  
22 (inaudible). The surrounding habitat was high  
23 quality. And that's important.

24 Because we had thousands and thousands  
25 of acres that were continuous out there that were

1 of good quality.

2 I'm wondering, can I ask questions, too?

3 MR. RATLIFF: Yes. Yes, you may.

4 HEARING OFFICER KRAMER: Let me ask,  
5 which alternative are we talking about at this  
6 point? There was a moment there when I thought we  
7 had concluded with the discussion of Mr Cashen's  
8 work on, I guess it's something closest to the I-  
9 15 alternative.

10 And yet we seem to be back in that same  
11 place again. So, --

12 MS. SMITH: I'm sorry, Mr. Kramer. I  
13 guess I should have clarified. What I said  
14 earlier was that we had finished -- we felt like  
15 we'd finished the discussion. It was, you know,  
16 ended mid-stream on Tuesday night. And we'd  
17 finished that increment about how it was that Mr.  
18 Cashen conducted his investigation.

19 But then we still had questions for  
20 staff. And I think that's what we're still doing.  
21 And that does have to do with any alternatives  
22 closer to the freeway.

23 HEARING OFFICER KRAMER: Okay. I just  
24 wanted -- because we're not talking -- it also  
25 starts to sound like we're having another



1 biological general discussion. And that finished  
2 before today. So, --

3 MS. SMITH: So I think what --

4 HEARING OFFICER KRAMER: Okay.

5 MS. SMITH: -- Mr. Cashen's trying to  
6 figure out right now is how it was that Mr.  
7 Anderson concluded that it was all high quality  
8 habitat, given that he was there for just the one  
9 day and that he based his analysis on qualitative  
10 factors rather than quantitative. So that's where  
11 we're at, the line of questioning.

12 HEARING OFFICER KRAMER: That is  
13 helpful. Please continue quickly.

14 MR. CASHEN: I will try. The previous  
15 question had to do with adjacent habitat. In your  
16 discussion of what was meant by that variable, it  
17 said that the quality of adjacent habitat was  
18 important and such, you know, source sink  
19 dynamics.

20 And I'm trying to figure out where were  
21 your sampling sites?

22 MS. CHAINEY-DAVIS: I can answer that  
23 question if figure 12 is still up, that would show  
24 Dick and I sampled basically the same areas. He  
25 didn't collect data at all of the same sites, I

1       don't think. Those were, you know, points at  
2       which I collected data. And took photographs to  
3       this point.

4               HEARING OFFICER KRAMER: So those would  
5       be the squares on figure 12?

6               MS. CHAINEY-DAVIS: Correct.

7               MR. CASHEN: Yes, --

8               HEARING OFFICER KRAMER: The black  
9       squares or the white squares?

10              MS. CHAINEY-DAVIS: Well, both, really.  
11       I mean the --

12              HEARING OFFICER KRAMER: Okay, thank  
13       you.

14              MR. CASHEN: I'm just wondering where  
15       his sites were.

16              MR. ANDERSON: Well, they're -- we were  
17       together so we stopped at all the same sites. But  
18       I didn't document things at every site. I  
19       documented things approximately every half mile to  
20       a mile.

21              And what I did was I looked for large  
22       areas of similar habitat and that's where I did my  
23       things. I don't have to have those maps that you  
24       guys are looking at, but I would like if you have  
25       available the AFC map on desert tortoise, desert

1       tortoise global signs that was provided in the  
2       AFC, I'd like to use that a little bit to explain  
3       some of my prep and some of the things I was  
4       thinking when I was out there.

5               Those would be the map that shows the  
6       Ivanpah 1, 2 and 3. But we also remember that  
7       Ivanpah 1 -- usually encompassed in the I-15  
8       alternative.

9               MS. SMITH: Dick, in maps in biological  
10       resources, I know which one you're talking about.

11              MR. ANDERSON: Yeah, it was in the AFC,  
12       it was separated out in the maps.

13              MS. SMITH: Thank you.

14              MR. ANDERSON: If you can just download  
15       one map.

16              HEARING OFFICER KRAMER: Let me ask not  
17       a question-question, but a question about propose  
18       maybe a route to get through this a little more  
19       efficiently.

20              Mr. Cashen obviously has some -- finds  
21       some fault with the work that Mr. Anderson did.  
22       And would it be more efficient for him to just  
23       explain what he thinks went wrong, and then for  
24       Mr. Anderson to respond to that criticism?

25              Because we're trying to get about this

1 in a very socratic way that is going to -- in  
2 danger of getting us another box dinner.

3 (Laughter.)

4 MR. ANDERSON: Well, I could explain --

5 HEARING OFFICER KRAMER: Mr. Anderson,  
6 hold on. Let them respond to the idea.

7 MS. SMITH: I just want to stop for one  
8 second. This is the Sierra Club's issue. I sat  
9 through an entire day of visual resources that was  
10 supposedly a non-contested issue. I have not  
11 complained once. I'm not comfortable with us  
12 being hurried on our issue.

13 We're doing the best we can. Believe  
14 me, I don't want to lose -- put everyone to sleep  
15 and lose you, but, you know, we're doing the best  
16 we can here. This is an issue that's very  
17 important to us.

18 HEARING OFFICER KRAMER: How much longer  
19 is this going to -- how much longer do you  
20 estimate?

21 MR. CASHEN: It depends on which route  
22 we go. If you want me to just summarize my  
23 concerns, I can do that as quickly as possible.

24 HEARING OFFICER KRAMER: Well, I gather  
25 Ms. Smith would prefer that you go the longer

1 route that you.

2 MS. SMITH: Absolutely not. I encourage  
3 the summaries and the quick route.

4 HEARING OFFICER KRAMER: Okay, well,  
5 then it sounds like --

6 MS. SMITH: We just --

7 HEARING OFFICER KRAMER: -- Mr.  
8 Anderson, forget the question. Mr. Cashen is  
9 going to explain what he thinks you did not do as  
10 well as you could have. And then you can respond  
11 to those criticisms.

12 So, do you have a pad there? You might  
13 want to even take notes if his list is long.

14 MR. CASHEN: Okay, I will go as quickly  
15 as possible. The foundation of the conclusion  
16 that it's all high quality desert tortoise habitat  
17 seems contradictory to the conclusion that I  
18 sampled in low quality habitat. But maybe we've  
19 already discussed that enough.

20 I'm looking primarily at pages 37 -- or  
21 36 and 37 of staff's rebuttal testimony. And  
22 these are the criteria that were used to evaluate  
23 desert tortoise habitat. They are described on  
24 page 37, and page 36 provides the scores that were  
25 given for each sampling site. And so I'll be

1        talking about those for people's reference.

2                First, I guess, would be that up until  
3        now there was no explanation of where the sampling  
4        sites even were. And it sounds to me like they  
5        were not representative, or they were not randomly  
6        assigned to begin with.

7                As far as the individual factors that  
8        were used, I'll go through them quickly. But it's  
9        important because the end result was a score of  
10       105 for the alternative site and 105 for the  
11       project site. So the score was actually exactly  
12       the same.

13               Topography, you said that you used  
14       considerations such as flat, sloping, steep and  
15       undulating. Those are highly correlated  
16       variables, maybe not undulating, but flat, sloping  
17       and steep are all sort of the same thing.

18               There's no link between what slope would  
19       be good or bad for desert tortoise habitat. Is  
20       flat good? Or is steep good? That link needs to  
21       be established.

22               It wasn't clear that that was measured  
23       quantitatively. It mentions micro-relief was  
24       measured. There's no explanation for how micro-  
25       relief was measured. Or that same category, it

1 says that the number of washes was measured.

2 Doesn't seem that the number of washes were  
3 counted.

4 The next one was likelihood of desert  
5 tortoise occurrence -- or likelihood of desert  
6 tortoise occurrence was also used. There's  
7 extremely high co-linearity between that variable  
8 and what you're actually trying to measure. I  
9 don't quite understand how you can use that as a  
10 predictor. Did you mean occupation?

11 Soil test. Your desert tortoises'  
12 burrow in the soil actually can go several feet  
13 down. Were there soil pits that were used to  
14 measure the soil texture at the depth that desert  
15 tortoises would actually use?

16 Dominant shrub says it includes factors  
17 such as shrub. I'm not sure what that means.  
18 Maturity, height, density and overall quality of  
19 shrub habitat. Again, there's no link established  
20 between what would be good and what would be bad.  
21 Are mature shrubs good or poor desert quality  
22 habitat?

23 And density. Are dense shrubs good or  
24 poor desert quality habitat? What makes good  
25 shrub habitat for desert tortoises?

1                   Herb layer. Herbs provide food for  
2                   desert tortoises. And actually there's been a lot  
3                   of research on the response of desert tortoise  
4                   populations to forage. But the sampling was done  
5                   at a time of year where herbs couldn't even be  
6                   measured. And actually on your score sheet that  
7                   was just lined out completely.

8                   Plant diversity. Plant diversity is a  
9                   measure of species richness and species evenness.  
10                  So it doesn't appear that evenness was measured.  
11                  What diversity index was used? Was it Simpson's  
12                  or was it Shannon's? I think diversity really  
13                  wasn't measured.

14                  Likelihood of desert tortoise  
15                  occurrence. That one seems like a gut feeling.  
16                  How would you know how likely an animal is to  
17                  occur? Does an animal always occur in an area  
18                  that we think it should occur? And not occur in  
19                  an area where it shouldn't occur?

20                  What about territorial animals?  
21                  Actually territorial animals defend high quality  
22                  habitat. And so in some cases you find animals  
23                  that occur in lower abundance in the best habitat.

24                  Were all these factors weighted equally?  
25                  Does each one -- it looks like they were just



1       added up. But, I would be willing to bet that not  
2       all these factors influence desert tortoise  
3       habitat in the same way. And perhaps weight  
4       should have been assigned.

5               And then there's some factors that were  
6       used that don't appear to have anything to do with  
7       desert tortoises. Likelihood of other special  
8       status species occurring. Overall habitat quality  
9       for wildlife.

10              I'm struggling to know occurrence of  
11       LeConte's thrasher or another special status  
12       species would have anything to do with whether  
13       desert tortoise occurs there or not.

14              And, finally, as I mentioned in my  
15       written testimony, why was the USGS habitat model  
16       that has been talked about today, why were the  
17       variables that were used to generate that model  
18       not used? The experts that developed that model  
19       actually tested them with statistics and found  
20       that the variables that they used are  
21       statistically significant predictors. Yet most of  
22       those variables were not even used in attributing  
23       habitat quality here.

24              And so I'm very concerned about a  
25       reconnaissance level, general habitat quality

1       assessment that is being made. And that being  
2       compared to with an actual study on the ground,  
3       measuring -- taking quantitative measurements of  
4       occupancy of desert tortoise so we actually have  
5       knowledge of where they occur and where they don't  
6       occur being used against just a subjective  
7       opinion.

8                   MR. ANDERSON: Is that all?

9                   (Laughter.)

10                  MR. CASHEN: Yes, thank you.

11                  MR. ANDERSON: Okay, well, I can go  
12       through your study and talk a lot about that, too.  
13       But, I think that if you know quite a bit about  
14       tortoise, if you go out and look at the site, you  
15       can identify quite a few of the things that you've  
16       just criticized here. Those will all be popping  
17       through your mind. You'll be considering every  
18       one of them from the tortoise habitat.

19                  The other thing is we were comparing  
20       three sites not just for tortoise, but for other  
21       wildlife species, also. So that's where some of  
22       the other special status stuff came in.

23                  One thing you said that I really like  
24       was the idea that it's hard to know sometimes  
25       where tortoises are or they're not. And that you

1       could have a lot of tortoises in low quality  
2       habitat. And I agree with that.

3               We can have high quality looking habitat  
4       but there may not be tortoises there. And I did  
5       not test for tortoises, but I did use a lot of  
6       information such as literature, databases. And I  
7       also used this map that I mentioned earlier that  
8       was in the AFC that showed tortoise signs from a  
9       protocol survey for tortoise.

10              So, I think what I did, it was  
11       subjective, that's what reconnaissance surveys  
12       are. Tried to put a little bit of order to it, a  
13       little bit of quantitateness with the numbers.  
14       I didn't rate any of the factors. I just put my  
15       ideas down that I saw, and from a lot of years of  
16       experience in tortoise habitat.

17              And I did rate both sites the same. I  
18       thought that all of the habitat, with the  
19       exception of a couple small disturbed areas, was  
20       high quality. Even the habitat in the lower areas  
21       was high quality for tortoise, even though it  
22       wasn't as diverse; didn't have as many -- the  
23       vegetative diversity that might offer more plants,  
24       more food for tortoises.

25              And you're right in the earth cover,

1       because it was summer, and there weren't, you  
2       know, we really couldn't identify the herbaceous  
3       cover.

4               But that's a few of the things that -- I  
5       didn't write them all down and I can't remember  
6       them all. But what I'd like to point out, if you  
7       have that map that I mentioned, in front of you,  
8       the AFC desert tortoise sign map?

9               MS. SMITH: Yes.

10              MR. ANDERSON: When you look at the  
11       Ivanpah 1 site, you can see that the I-15 corridor  
12       almost completely encompasses it. And you can see  
13       all of the tortoise sign that was found there.  
14       And as we move down in elevation we're getting  
15       less diversity in the habitat, but it's still  
16       mature creosote bush community. And there are a  
17       lot of tortoise sign there; and I think the most  
18       tortoises were found there.

19              And so when I looked at what you tried  
20       to so, I thought your methodology was okay. You  
21       tried to do a good job. I understand that the  
22       lack of funds, sometimes, and the lack of time  
23       makes you use a study design that fits those  
24       parameters. But it doesn't always make for an  
25       ideal sample design, and -- end up with results

1       you can have confidence in.

2               One of your sample areas was right --  
3       seemed to be quite close. You said 100 feet from  
4       the freeway. Well, all of our work was about 1000  
5       feet from the freeway.

6               I agree with you that tortoises are  
7       affected by traffic, that there are a lot of  
8       roadkills. And there's a depression zone or  
9       depletion zone. But different studies have  
10      different pictures. And they range from 175  
11      meters up to several kilometers.

12              And having worked on some of the study  
13      years ago with Mark Csazaki, who was a Commission  
14      biologist, I was very interested in some of the  
15      more recent work that was done on that particular  
16      study area to see how the fencing has worked.

17              In their study they talk about the  
18      increases in tortoise sign throughout -- that are  
19      approximately 400 meters. After 400 meters, and  
20      again what they studied in the Mojave Desert, that  
21      was the depression.

22              So we looked at -- we're looking at an  
23      I-15 study that is more than 400 meters from at  
24      least the sites that we looked at. By we I mean  
25      the staff. More than 400 meters from the freeway.

1       And so may have not felt much of the effects from  
2       collision, from the roadkill.

3               And so that's why when you look at the  
4       number of tortoises being in Ivanpah 1, there's no  
5       evidence that there's a reduction of tortoises  
6       there. In fact, there's more tortoises there than  
7       two or three.

8               And so there's nothing there that would  
9       make you believe that the cone of depression, or  
10      the area of reduced tortoise use extends very far  
11      into the site.

12              And so based upon that, and looking at  
13      the habitat, and using my own professional  
14      judgment, I estimated that both these sites are  
15      very good habitat. Some areas that's upper  
16      elevation at both sites are spectacular. And that  
17      both will represent a significant impact, and  
18      neither one was a significant improvement over the  
19      other.

20              MS. CHAINEY-DAVIS: I think if it's okay  
21      for me to, at one point -- this is Carolyn  
22      Chainey-Davis. It's not as though we're talking  
23      about two different sites. We are talking about  
24      two points, i.e., the I-15 alternative site and  
25      the project site, on one impact land form, on the

1 same alluvial fan. It's not like they're  
2 different land forms separate geographically by  
3 miles. They're not on different aspects, they're  
4 not different soils, they're not different, you  
5 know, general habitats. It's basically just  
6 different points on the same habitat.

7 And that's very clear if you look at the  
8 aerial photos. So if you don't want to get lost  
9 in the minutiae of, you know, the data collected,  
10 and you just want to kind of get your own picture,  
11 for anybody up there, the Commissioners, if you  
12 look at the aerial photos of that whole area, that  
13 includes both the I-15 alternative and the project  
14 site, you'll see that, you know, when you zoom way  
15 in on the high resolution area, you'll see that  
16 it's virtually, the signatures are virtually  
17 identical to what you see on the I-15 site.

18 The only difference is there's a narrow  
19 strip along the highway, which we did include in  
20 our study, that could not be included in an  
21 alternative due to constraints from right-of-ways  
22 for the point of entry.

23 And there's a little bit of disturbance,  
24 there's disturbance around the golf course.  
25 There's a network of roads, but they're narrow.

1       There's not a whole lot of disturbance on the  
2       site. Not a lot. You know, it looks pretty good.  
3       It looks pretty identical.

4               So if you zoom out and you look at the  
5       big picture, try not to get lost in, you know, how  
6       the species -- was measured, we're looking at the  
7       same habitat. They even follow the same  
8       elevational gradient from, you know, give or take  
9       a few hundred feet here and there.

10              Thank you.

11              HEARING OFFICER KRAMER: Mr. Cashen, did  
12       Mr. Anderson cover all of the various subpoints of  
13       your concerns in your list? Or, if you'd like to  
14       highlight a couple that you felt he missed and  
15       refresh his recollection so he can answer those,  
16       as well.

17              MR. RATLIFF: Mr. Kramer, please don't  
18       egg him on. When we down into the creosote I  
19       don't think it's been possible to get back up  
20       above it again.

21              It began with criticism of sampling  
22       techniques or the survey techniques used by one  
23       biologist. It seems to extend now to the point  
24       where perhaps we could just stipulate that the  
25       biologists have some levels of disagreement with



1 each other.

2 But I don't think this is particularly  
3 useful or meaningful for anyone here.

4 HEARING OFFICER KRAMER: No, I  
5 understand what you're saying. We offered Mr.  
6 Cashen what I hoped was a shortcut. And given the  
7 length of his list of criticisms, I think it  
8 probably --

9 MR. RATLIFF: Well, it was encyclopedic.

10 HEARING OFFICER KRAMER: -- was -- well,  
11 let --

12 MR. RATLIFF: Do you want --

13 HEARING OFFICER KRAMER: No. Let me --

14 MR. RATLIFF: Are we going to keep --

15 HEARING OFFICER KRAMER: My turn. But  
16 in his answer Mr. Anderson admitted that he might  
17 have forgotten one of the points because he didn't  
18 write them all down. So I -- before I cut Mr.  
19 Cashen off I want to at least give him a chance to  
20 get answers to all the focused micro-questions  
21 that I just encouraged him to ask. I think that's  
22 only fair.

23 So, Mr. Cashen, did Mr. Anderson  
24 overlook a couple of your sub-topics? And if you  
25 could just state them every so briefly to refresh

1 his recollection, we can then make sure that he  
2 responds to those, as well.

3 MR. CASHEN: Yes. Instead of trying to  
4 keep this going, actually despite what it sounds  
5 like in us having disagreements, I do think  
6 there's a lot of commonality here. And I'll just  
7 state what I think that is. And if staff  
8 disagrees, then they can respond. But I'll have  
9 nothing else to say.

10 And thank you, Mr. Anderson, for  
11 explaining, because one of my biggest concerns was  
12 that you had listed quality of surrounding habitat  
13 as a factor. And you mentioned disturbance and  
14 what that does to tortoise habitat; and  
15 fragmentation; sink source considerations.

16 And so the fact that you said that you  
17 sampled greater than 400 meters away from the  
18 freeway was helpful in understanding how you got  
19 all 3's, the highest possible scores for the  
20 alternative site, given that it is surrounded by  
21 the golf course and the highway.

22 What I think we have in common is that  
23 we agree that, I think, as biologists, we both  
24 agree that quantitative data is better than  
25 qualitative data. And actually assessment of

1 actual occupancy and figuring out where the animal  
2 occurs is better than us, as human beings, trying  
3 to predict where that animal might be.

4 And I think we also seem to agree that  
5 there are ecological principles, such as  
6 fragmentation and maintenance of large blocks of  
7 habitat that are important to maintaining intact  
8 ecosystems.

9 And it seems that we also agree that the  
10 studies of desert tortoises have shown that roads  
11 are a sink for tortoises, and that they have an  
12 adverse effect.

13 And if I'm wrong, please respond. Thank  
14 you.

15 HEARING OFFICER KRAMER: And respond by  
16 just stating the nature of your disagreement. But  
17 you don't need to attempt to try to convince him  
18 that he's wrong.

19 MR. ANDERSON: I don't disagree. I  
20 agree with everything he said.

21 HEARING OFFICER KRAMER: Okay. Do we  
22 have any other -- Dr. Connor, you had a couple  
23 more questions along a different line. Ms.  
24 Belenky, did you have something along the same  
25 line?

1                   MR. BASOFIN: I had a few questions -- I  
2                   think Defenders might be the only party that  
3                   hasn't had an opportunity to ask questions on the  
4                   alternatives.

5                   HEARING OFFICER KRAMER: Go ahead, Mr.  
6                   Basofin.

7                   MR. HARRIS: Can I ask a question. Do  
8                   people have any questions for Mr. Rubenstein and  
9                   Dr. Spaulding? We do, huh? Okay, because Mr.  
10                  Gray has pneumonia and I'd really like to get him  
11                  home at some point

12                  MS. BELENKY: Oh, Mr. Gray? No. Mr.  
13                  Gray, I already asked my questions of Mr. Gray, I  
14                  believe.

15                  HEARING OFFICER KRAMER: Okay, anybody  
16                  else want to question Mr. Gray?

17                  MR. HARRIS: Anybody else have any  
18                  questions for Mr. Gray or Mr. Olson?

19                  MR. SUBA: No.

20                  MS. BELENKY: Mr. Olson --

21                  MR. HARRIS: I believe we are done with  
22                  Mr. Powers and Mr. Olson, too, but --

23                  MS. BELENKY: I had one follow-up on Mr.  
24                  Olson that was just clarifying. But, if -- I  
25                  don't know what to do. I feel like it's really

1       unfortunate that we're rushing these hearings so  
2       much.  But --

3                   (Laughter.)

4                   MS. BELENKY:  I know they seem long, but  
5       this is -- we have rushed to get to this point.  
6       Many issues might have been able to be resolved  
7       before the parties if we had had a longer time to  
8       study the documents and to have more time with  
9       staff and the other parties.

10                  So, I am hesitant to give up my question  
11       simply because nobody wants to stay longer.

12                  HEARING OFFICER KRAMER:  Yours was a  
13       question for Mr. Olson?

14                  MS. BELENKY:  Yes.  They're just very  
15       brief, but I --

16                  HEARING OFFICER KRAMER:  Well, let's get  
17       to Mr. Basofin.  Mr. Olson, your health is good at  
18       the moment:

19                  MR. OLSON:  Yes.

20                  HEARING OFFICER KRAMER:  Mr. Gray, does  
21       anyone have any questions for him?  I hear none,  
22       so thank you, sir.  I hope you get better soon.

23                  MR. GRAY:  Thank you.

24                  MR. HARRIS:  Roger, could we call your  
25       cell if we need you?  Because I think yours and

1 Arne's are pretty fairly related. But please go  
2 home and get better.

3 HEARING OFFICER KRAMER: Mr. Basofin, go  
4 ahead.

5 MR. BASOFIN: Thank you. I just have a  
6 few questions for Ms. Lee regarding the  
7 alternative section. And I will try to be brief.  
8 I am conscious of the need for expedience in this  
9 hearing, so I will try to be as brief as possible.  
10 And I'll lay out a route map for you, and if I get  
11 off it you're more than welcome to get me back.

12 Basically my questions are in three  
13 categories. There's a little bit of background I  
14 need from Ms. Lee as to her methodology for  
15 alternatives. And then I want to talk about the  
16 private land alternatives that were eliminated  
17 before being considered. And I want to talk about  
18 the private land alternative that was considered.

19 So starting with the background, Ms.  
20 Lee, I understand we don't have any of your  
21 background materials or field notes today, but I'd  
22 just like to get a sense of what you relied on.

23 So can you tell us if there were any  
24 manuals or guidance that you relied on in doing  
25 the alternatives analysis?

1 MS. LEE: CEQA regulations, CEQA  
2 guidelines primarily.

3 MR. BASOFIN: Okay. And are you  
4 familiar with the Renewable Energy Transmission  
5 Initiative?

6 MS. LEE: Yes.

7 MR. BASOFIN: And you're familiar with  
8 the documents including the 2-A?

9 MS. LEE: I'm familiar with them. I  
10 haven't read them cover to cover, but I am  
11 familiar with them, yes.

12 MR. BASOFIN: Okay. Are you familiar  
13 with the principle espoused by RETI that there's a  
14 preference for degraded private land alternatives  
15 in --

16 MS. LEE: Yes.

17 MR. BASOFIN: -- transmission lines, and  
18 that those should be a priority for the state?

19 MS. LEE: Right.

20 MR. BASOFIN: And did that principle  
21 guide you --

22 MS. LEE: That, yeah, I mean we --

23 MR. BASOFIN: -- in analyzing  
24 alternatives?

25 MS. LEE: -- in fact, quoted some of

1       that in the discussion of the private land  
2       alternative.

3               MR. BASOFIN:  Okay, thank you.  And  
4       after considering the objectives for the project  
5       the proponent had put into its AFC, did you  
6       develop a set of objectives, yourself?

7               MS. LEE:  We did.  We --

8               MR. BASOFIN:  And this --

9               (Pause.)

10              MS. LEE:  This is in the FSA, page 4,  
11       section 4-4.  We list the applicant's project  
12       objectives, of which there were, I think eight;  
13       and then conclude, basically eliminate some of  
14       them because some of their objectives that relate  
15       to more specific things like complying with the  
16       power sales agreement don't apply from the agency  
17       perspective in choosing project objectives.

18              So there are three that are presented --

19              MR. BASOFIN:  And what were -- and could  
20       you just briefly explain what those three were?

21              MS. LEE:  The three?

22              MR. BASOFIN:  Yes.

23              MS. LEE:  Yeah.  The first one is -- do  
24       you want me to read them or summarize them?  
25       They're on --



1 MR. BASOFIN: Just summarize the three.

2 MS. LEE: -- page 4-4. The first one is  
3 essentially to construct and operate a 400  
4 megawatt renewable power plant. The second one is  
5 to locate it in an area that's appropriate to the  
6 technology, which is high solarity and slope of  
7 less than 5 percent. And the last one is the goal  
8 of getting the process finished in 2010.

9 MR. BASOFIN: And why did you choose the  
10 last one of getting it -- why was that an  
11 objective?

12 MS. LEE: Yeah, the last one is probably  
13 the least important of the three, but it just puts  
14 some parameters on the feasibility concept of  
15 looking at alternatives, is that we don't want to  
16 look at an alternative that might be feasible to  
17 finish in five years from now, when there is a  
18 real reason to have something online sooner in  
19 that the goal of the project, from the  
20 Commission's perspective, is to comply with  
21 renewable portfolio standards.

22 MR. BASOFIN: Okay, thank you. Did you  
23 consider private land alternatives that would have  
24 attained most of, but not all of, the project  
25 objectives?

1 MS. LEE: Yes.

2 MR. BASOFIN: Okay. And did you  
3 consider private land alternatives that would have  
4 attained most of, but not all of, the project  
5 objectives, but may have been more costly?

6 MS. LEE: We didn't put up a cost  
7 parameter on it. But we didn't eliminate anything  
8 because it would have been more costly. And that  
9 is straight out of CEQA.

10 MR. BASOFIN: And cost was a factor in  
11 determining feasibility?

12 MS. LEE: It was not.

13 MR. BASOFIN: It was not. Okay. The  
14 FSA states that there were three private land  
15 alternatives that were included in the AFC, the  
16 Harper Lake, Lucerne Valley and Rabbit Lake  
17 private land alternatives, is that right?

18 MS. LEE: Yes.

19 MR. BASOFIN: Okay. And those were  
20 eliminated, and it states in the AFC that they  
21 were eliminated because BrightSource felt that  
22 obtaining site control from multiple owners would  
23 have been time consuming and risky?

24 MS. LEE: That's correct.

25 MR. BASOFIN: Did you agree with that

1 statement?

2 MS. LEE: I do agree with that  
3 statement. I don't think that's the only reason  
4 to eliminate a private land alternative, but there  
5 is definitely a feasibility concern with obtain a  
6 large site from multiple owners.

7 MR. BASOFIN: Okay. Did you initially  
8 consider any private land alternatives that were  
9 not included in the AFC, so were not outside of  
10 those three that were in the AFC?

11 MS. LEE: When you say initially, do you  
12 mean in the PSA or --

13 MR. BASOFIN: Yes, in the PSA.

14 MS. LEE: The PSA addressed the private  
15 land alternative conceptually. But we didn't  
16 identify specific site, so that's a yes answer, I  
17 guess. Yes.

18 MR. BASOFIN: And did you -- actually,  
19 turning to the Harper Lake site, the FSA states  
20 that the Harper Lake site was the only one of the  
21 private land alternatives from the AFC that had  
22 sufficient land for a 400 megawatt facility, is  
23 that right?

24 MS. LEE: That sounds right. I'm  
25 looking for it right now. Yes. And, go ahead.

1                   MR. BASOFIN: I think I can point you to  
2 a page number.

3                   MS. BELENKY: 4-19.

4                   MR. BASOFIN: 4-19, thank you. Okay, so  
5 that was the only site from the AFC that had  
6 sufficient land for a 400 megawatt facility with  
7 the configuration of the proposed project.

8                   MS. LEE: Right. We did not pursue that  
9 site in any more detail than what was in the AFC.

10                  MR. BASOFIN: Right. And so the problem  
11 with that site was that one of the landowners  
12 requested too much money to make the site  
13 economically feasible?

14                  MS. LEE: That was, again, straight out  
15 of the AFC. We didn't verify that fact.

16                  MR. BASOFIN: I see. So, you didn't  
17 determine how much money that one landowner  
18 requested?

19                  MS. LEE: That's correct. Didn't.

20                  MR. BASOFIN: Okay. And in your  
21 experience with doing alternatives analyses do you  
22 take what's put into an application at face value?

23                  MS. LEE: No. It just, in that case we  
24 were developing a separate private land  
25 alternative that we felt was more in line with the

1 criteria that were laid out both by RETI and in  
2 the conservation group's letter.

3 So it was -- we really wanted to present  
4 what we thought was the most feasible private land  
5 alternative for consideration. And it was the one  
6 that was, in fact, analyzed in the FSA, and not  
7 that one.

8 You know, the Harper Lake site has an  
9 application on it that's being pursued at the  
10 Commission right now. And there really isn't room  
11 there for yet another site. That's the Abengoa  
12 project that's --

13 MR. BASOFIN: Does an existing AFC at  
14 the Commission preclude it from being considered  
15 as an alternative in this proceeding?

16 MS. LEE: You know, we've talked about  
17 that a lot internally. Theoretically it doesn't  
18 preclude it, but it doesn't seem logical to  
19 consider an alternative when there's another  
20 project that could just as likely be approved.

21 It doesn't mean -- you're not really  
22 looking at a straight-across either/or.

23 MR. BASOFIN: Okay, but the Abengoa  
24 project and this project, I think, have differing  
25 configurations, differing technical aspects.

1 MS. LEE: That's -- it's a solar --

2 MR. BASOFIN: I mean, they're separate  
3 projects.

4 MS. LEE: -- trough project, that's  
5 right.

6 MR. BASOFIN: Right. And so the  
7 analysis of whether the site would be appropriate  
8 for one or the other of those projects would be  
9 specific to the constraints of each project, is  
10 that right?

11 MS. LEE: The technology. You know, the  
12 requirements for those two technologies are pretty  
13 similar. They require good insolation and  
14 relatively flat sites. The solar trough requires  
15 something a little flatter, usually more like 2  
16 percent instead of closer to 5. But certainly,  
17 this project could have been built at that site in  
18 terms of just the ground configuration.

19 MR. BASOFIN: Okay, so just to wrap up  
20 the Harper Lake site, you don't know how much  
21 money was requested for that --

22 MS. LEE: No.

23 MR. BASOFIN: -- one landowner?

24 MS. LEE: No.

25 MR. BASOFIN: And do you know how much

1 acreage that one landowner controlled?

2 MS. LEE: No.

3 MR. BASOFIN: Okay. Do you know how  
4 many acres the Harper Lake site was in total?

5 MS. LEE: I don't know.

6 MR. BASOFIN: Okay. Moving on to the  
7 private land alternative that you did consider.  
8 That private land alternative was 4000 acres, is  
9 that right?

10 MS. LEE: Yes.

11 MR. BASOFIN: So it was roughly the same  
12 acreage as the proposed project?

13 MS. LEE: Right. This is one that we  
14 designed to basically mimic the configuration of  
15 the proposed project because we wanted one that  
16 had the appropriate acreage, yeah.

17 MR. BASOFIN: Okay. You ultimately  
18 determined that that was not a preferred project  
19 for most of the analysis you did. I think it was  
20 -- is it correct that it was preferred for  
21 biological?

22 MS. LEE: That is correct, yeah.

23 MR. BASOFIN: Okay. So for which topic  
24 areas was it not preferred for?

25 MS. LEE: The challenges that that site

1        had were things that apply to more developed  
2        areas, which related to land use. It had some  
3        residences not very far from the edge of it, which  
4        Ivanpah doesn't.

5                It had some really interesting cultural  
6        resources. A lot of historic issues that applied  
7        to the site directly, old stage coach trails and  
8        things.

9                It had agricultural land within it. And  
10       loss of ag land is considered a significant  
11       impact, as well.

12               Those were the big ones. The other  
13       comparable issues really were, you know,  
14       biological resources was definitely worse quality  
15       at that site.

16               MR. BASOFIN: Okay. Did you consider  
17       whether a somewhat reduced acreage and a somewhat  
18       reduced megawatt capacity could have both met most  
19       of the objectives of the project and reduced the  
20       impacts you just cited to less than significant?

21               MS. LEE: At the --

22               MR. BASOFIN: At the --

23               MS. LEE: -- private land site or --

24               MR. BASOFIN: -- private land site, yes.

25               MS. LEE: -- at the proposed -- at the



1 private land site.

2 MR. BASOFIN: Yes.

3 MS. LEE: No, we didn't.

4 MR. BASOFIN: So you only considered an  
5 alternative at the private land site that was the  
6 exact same acreage and exact same megawatt output?

7 MS. LEE: Right.

8 MR. BASOFIN: Did you consider any  
9 private land alternatives in Los Angeles County?

10 MS. LEE: No.

11 MR. BASOFIN: Okay. Are you familiar  
12 with the Antelope Valley Solar Ranch, a 230  
13 megawatt PV project on degraded land in Los  
14 Angeles County?

15 MS. LEE: Is it a proposal, proposed  
16 project?

17 MR. BASOFIN: It is a proposed project,  
18 yes.

19 MS. LEE: I'm not.

20 MR. BASOFIN: Okay.

21 MS. LEE: It's in Kern County or L.A.  
22 County?

23 MR. BASOFIN: It's a 230 megawatt  
24 photovoltaic project on degraded, private degraded  
25 land in Los Angeles County.

1 MS. LEE: No, I'm not familiar.

2 MR. BASOFIN: Not familiar, okay. Are  
3 you familiar with the proposed Gray Butte Solar  
4 Array, a 150 megawatt photovoltaic project on  
5 degraded land in northeastern Los Angeles County?

6 MS. LEE: No.

7 MR. BASOFIN: Other than your initial  
8 review of the three sites from the AFC, Lucerne,  
9 Rabbit Lake and Harper, any more extensive review  
10 of I guess what's called the private land  
11 alternative, did you look in any other areas of  
12 the state for private land alternatives?

13 MS. LEE: No. I could modify that a  
14 little bit. We, you know, RETI's -- 2A report  
15 included a map that identified a wide range of  
16 disturbed lands. And we used that map to define  
17 the areas that brought us closest to this proposed  
18 project area just for the sake of identifying --  
19 well, because I don't think it made sense to look  
20 at 20 different private land alternatives around  
21 the state.

22 So we used the RETI data to point us to  
23 a disturbed land area closest to this site just as  
24 being a comparable location.

25 MR. BASOFIN: Okay, thank you. Is it

1 safe to say that in your analysis of the  
2 alternatives there was a consideration of any site  
3 that would have had a reduced megawatt output or  
4 reduced acreage?

5 MS. LEE: That's correct. Well, you're  
6 talking about another site as opposed to the  
7 reduced acreage alternative we've been talking  
8 about all morning?

9 MR. BASOFIN: I'm talking about private  
10 land alternatives.

11 MS. LEE: Oh, private --

12 MR. BASOFIN: I'm sorry.

13 MS. LEE: Okay.

14 MR. BASOFIN: All my questions relate to  
15 private land alternatives, --

16 MS. LEE: Okay. Okay.

17 MR. BASOFIN: -- so if I don't say it.

18 MS. LEE: Okay.

19 MR. BASOFIN: What would you say are --  
20 let me back up. Implicit in sort of the concept  
21 of meeting most of a project's objectives, I think  
22 is that some of the project's objectives would be  
23 abandoned. Can you just explain a little bit  
24 about which project objectives of the three that  
25 you listed you considered abandoning?

1 MS. LEE: It could be any of them,  
2 really. And this is an issue on which I don't  
3 think there is any clear guidance within CEQA on  
4 how you decide what most means.

5 Something we deal with pretty much on  
6 every single project, to decide what is most of  
7 the project objectives. And it can range from,  
8 say, abandoning a timeframe, which is a common one  
9 when we're dealing with projects that are under an  
10 applicant-proposed, very tight timeframe, to  
11 reducing the megawatts, as you point out.

12 So there's just no rule on it. We've  
13 had other projects where we've said specifically  
14 that two out of three objectives would be okay.  
15 But it really depends on what the objectives are.

16 MR. BASOFIN: So, but in this case, you  
17 know, there's the possibility of -- I guess what  
18 I'm getting at is there a possibility of kind of  
19 taking a portion of one objective, so --

20 MS. LEE: Absolutely, yeah.

21 MR. BASOFIN: -- so that's possible?

22 MS. LEE: Well, and that's how we got to  
23 the acceptance of the reduced acreage alternative  
24 being something less than 400 megawatt on the  
25 proposed site.

1                   Of course, that could have applied to a  
2                   private land site. But that's -- we didn't  
3                   consider an alternative like that.

4                   MR. RATLIFF: Just so you know, Mr.  
5                   Basofin, typically when we get an AFC there are  
6                   often 10 or 12 project objectives listed in the  
7                   AFC, which would make it impossible for any other  
8                   project to actually fulfill the objectives of the  
9                   project objectives in the AFC.

10                  And so what staff always has to struggle  
11                  with is what are the essential ones. And usually  
12                  those boil down to some subset of that that is  
13                  much smaller.

14                  In this case we broke it down, we  
15                  really, I think, had three --

16                  MS. LEE: Three out of eight.

17                  MR. RATLIFF: -- three out of eight.

18                  So.

19                  MR. BASOFIN: Well, I realize that, and  
20                  I think a lot of my questions are going to how did  
21                  -- what was included in the AFC that was then  
22                  filtered into the CEC's process for analysis. I'm  
23                  certainly cognizant of that.

24                  I think -- let me just check. Yeah, I  
25                  think that's all I have, thanks.

1                   HEARING OFFICER KRAMER: Thank you. Ms.  
2                   Cunningham.

3                   MS. CUNNINGHAM: I'd like to ask Ms. Lee  
4                   was there a reason staff didn't consider an  
5                   alternative of a solar integrated combined cycle,  
6                   which I understand can integrate with a power  
7                   tower?

8                   MS. LEE: Not really. You know, we had  
9                   a total of 23 alternatives we already considered.  
10                  And CEQA says you don't have to consider every  
11                  single alternative there is. So we truly thought  
12                  this was an adequate reasonable range of  
13                  alternatives.

14                  MS. CUNNINGHAM: I have a question for  
15                  Dr. Spaulding.

16                  HEARING OFFICER KRAMER: Certainly.

17                  MR. DE YOUNG: Wake up, wake up.

18                  (Laughter.)

19                  HEARING OFFICER KRAMER: Welcome back,  
20                  sir.

21                  DR. SPAULDING: Thank you, sir. At your  
22                  pleasure.

23                  (Laughter.)

24                  MS. CUNNINGHAM: I visited the project  
25                  site ten times, and walking around, photographing,

1 I've seen cryptogamic soil, I'd say, commonly.

2 Have you had a chance to review Basin and Range  
3 Watch's exhibit 800, photographs of cryptogamic  
4 crust?

5 DR. SPAULDING: Were they taken at the  
6 project site?

7 MS. CUNNINGHAM: Yes.

8 DR. SPAULDING: No, unfortunately not.

9 MS. CUNNINGHAM: When you were taking  
10 photographs did you set up sample plots and  
11 measure cover density and the species composition  
12 of cryptogamic crust.

13 DR. SPAULDING: No. At the time it  
14 wasn't necessary.

15 MS. CUNNINGHAM: That's all, thank you.

16 HEARING OFFICER KRAMER: Mr. Suba.

17 MR. SUBA: Dr. Spaulding, just a couple  
18 quick questions, thank you.

19 DR. SPAULDING: Certainly.

20 MR. SUBA: Can you describe the type of  
21 organisms that make up the cryptobiotic soil or  
22 the cryptogram crust that we're talking about?

23 DR. SPAULDING: They consist of --  
24 they're characterized most commonly in the  
25 literature as cyanobacteria, lichens and moss, in,

1 if you will, a communal pot pourri.

2 MR. SUBA: Thank you. Are you aware of  
3 any studies pertaining to the nature of these  
4 crusts at the Ivanpah site?

5 DR. SPAULDING: Other than the  
6 aforementioned exhibit, no, I'm not.

7 MR. SUBA: Thank you. That's all my  
8 questions.

9 HEARING OFFICER KRAMER: Ms. Belenky.

10 MS. BELENKY: Thank you. I just have a  
11 few questions and some of them, I think I'll first  
12 just go back to the staff alternatives for a  
13 couple of clarifications.

14 MR. HARRIS: Can we get Mr. Olson out of  
15 here? I mean seriously, --

16 MS. BELENKY: Would you like me to do  
17 that first?

18 MR. HARRIS: Yeah. I really, you know,  
19 I'm not insisting on Mr. Powers being around  
20 because I have another question for him. I really  
21 think it's -- if we can release him, we ought to  
22 give him the same courtesy we gave Mr. Powers, who  
23 testified by telephone.

24 MS. BELENKY: That's fine with me. I  
25 can go back to Mr. Olson.



1                   Mr. Olson, in your testimony you have --  
2                   there's a comparative cost section from page A-16  
3                   to A-17. I just wanted to clarify that you did  
4                   comparative costs between two different kinds of  
5                   PV and you did not do any comparative costs with  
6                   the project, itself, is that correct? The  
7                   proposed project.

8                   MR. OLSON: That's correct, there was no  
9                   costing overall proposed on the Ivanpah project.

10                  MS. BELENKY: Thank you. And then in  
11                  your testimony, as well, I believe it's at A-19,  
12                  you discuss federal funding and credits for  
13                  distributed PV. I won't characterize the point  
14                  you're making there, but I just wanted to see, did  
15                  you do any analysis about the need for federal  
16                  funding and credits for the proposed project. And  
17                  how, if that funding or credits changed, it would  
18                  affect this project.

19                  MR. OLSON: Well, every project has its  
20                  own -- in the end will have its own set of very  
21                  specific financing arrangements. And I think you  
22                  heard Mr. Woolard a couple of days ago give some  
23                  details about some of the financing arrangements  
24                  that the proposed project has.

25                  Now, the proposed project is proposed to

1       be completed long before 2016, which is when the  
2       existing federal tax credits are slated to revert,  
3       the investment tax credit is slated to revert from  
4       the 30 percent level that exists in the federal  
5       statute today, to the 10 percent level that's the  
6       permanent level in the federal statute.

7                   And so this point that I make here about  
8       the DPV alternative being contingent upon  
9       continued federal tax incentives is true for the  
10      categorical DPV alternative.

11                   It may be true for other solar-thermal  
12      projects that have not yet begun to obtain  
13      financing from either the federal government  
14      grants or from the private equity and debt  
15      markets.

16                   I don't believe that it's true with  
17      respect to the Ivanpah project. But I'm not  
18      familiar with the details of the financing of the  
19      Ivanpah project other than what we heard from Mr.  
20      Woolard.

21                   MS. BELENKY: So I'm just trying to make  
22      sure you answered my question. So the answer is  
23      you did not analyze what any changes in funding  
24      would -- the effect of any changes in funding on  
25      the Ivanpah project, is that correct?

1                   MR. OLSON: Not analyze the effect of  
2 changes in federal tax code with respect to the  
3 Ivanpah project, that's correct.

4                   MS. BELENKY: Thank you. That's it,  
5 that's all I had.

6                   MR. HARRIS: Can he be freed?

7                   HEARING OFFICER KRAMER: Yes. Thank  
8 you.

9                   MR. HARRIS: And we'll get a cellphone  
10 number for Arne, as well. But I hope no one  
11 decides to use it.

12                   MS. BELENKY: I'd like to turn back to  
13 staff. I just have two or three clarifying  
14 questions about the alternatives.

15                   Just in the recent discussions first I  
16 want to clarify that you said that the cost of any  
17 of the alternatives was not a factor in the  
18 feasibility analysis that you conducted for any  
19 alternative, is that correct? Was that your  
20 testimony? I'm just trying to make sure I  
21 understood.

22                   MS. LEE: Yeah, that is the case in  
23 this. I'm not saying it never is, but in this  
24 staff assessment that is true.

25                   MS. BELENKY: Okay, but I guess where

1 I'm confused is at least for the Harper Lake  
2 alternative it appears that cost was the factor  
3 that knocked it out. So I just wanted to make  
4 sure I understood your testimony.

5 MS. LEE: I guess on Harper Lake the  
6 reason that the applicant explained that they  
7 didn't pursue it was because of cost. But I  
8 didn't verify whether or not that was the case.

9 Truly, we presented their information  
10 and then went on to find what we thought was  
11 really a more viable private land alternative.

12 MS. BELENKY: Thank you. And to the  
13 best -- well, I'm going to leave that one behind.  
14 I have one question also about significance of  
15 impact.

16 You were discussing the new proposed  
17 reduced site alternative that we've been talking  
18 about today. And again I'm trying to clarify what  
19 you said. And then I could ask you a follow-up  
20 question on it.

21 You said that you were only looking at  
22 reducing impacts to plants in that reduced  
23 footprint alternative, is that correct?

24 MS. LEE: If I said only that would not  
25 be correct. Primarily is, I think, more accurate.

1 And that alternative really was driven by feedback  
2 from our biology staff. So the question as to the  
3 significance of the impact rally should go back to  
4 them.

5 But it really was -- it was a joint  
6 effort of the biology staff feeding information to  
7 alternatives in order to do the best we could to  
8 minimize impacts to biological resources.

9 MS. BELENKY: Thank you. And when you  
10 are attempting, and attempted here, to look at  
11 significant impacts and reducing them, which is  
12 either avoiding or reducing through an  
13 alternatives analysis, did you take into account  
14 the significance of the impacts of the  
15 translocation, itself, on the tortoises? The  
16 actual translocation and the potential for death  
17 of tortoises in that process, as a significant  
18 factor that you were trying to avoid?

19 MS. LEE: To the extent that the reduced  
20 acreage alternative would affect fewer tortoises,  
21 then that would result in fewer tortoises being  
22 translocated.

23 So, it's a benefit of the reduced  
24 acreage alternative. So it wasn't, you know, we  
25 didn't -- at least I didn't specifically think

1       about translocation. But in the big picture,  
2       reducing impacts to tortoise generally, was one of  
3       the components we were trying to get to.

4               MS. BELENKY: Thank you. I'm just  
5       trying to make sure I understand the way the staff  
6       was viewing the significance of the impacts to the  
7       tortoise, because there was some discussion that  
8       the impacts, according to staff, have been found  
9       that they could be mitigated below the level of  
10      significance.

11             However, I'm not clear that that  
12      analysis takes into account the translocation,  
13      itself, and the loss of tortoises, individuals, in  
14      that process.

15             So, if someone, whoever on staff, could  
16      explain how that factor, and what factor you used  
17      for the likely death of tortoises during that  
18      process.

19             DR. SANDERS: So your question is how  
20      did we factor in the translocation in our  
21      significance assessment for desert tortoise?

22             Well, the translocation is a salvage  
23      operation. It's an avoidance measure trying to  
24      save the tortoises that can be saved. The entire  
25      4000-acre site is considered a loss for supporting

1 future desert tortoise. And we're just trying to  
2 preserve the ones we can by moving them to  
3 suitable site.

4 Did that answer your question?

5 MS. BELENKY: I think so, except first  
6 you said salvage, and then you said avoidance.  
7 So, I'm not sure if you believe that translocation  
8 is an avoidance measure or if it's --

9 DR. SANDERS: It is.

10 MS. BELENKY: -- a minimization measure,  
11 which is how I've heard it termed by other people.  
12 And I'm just trying to get at how you analyzed  
13 that.

14 Then taking that analysis and using it  
15 in the alternatives.

16 DR. SANDERS: Avoidance and minimization  
17 are the terms that I should use. Salvage, in the  
18 sense that you're picking up what you can, out of  
19 harm's way. But, yes, avoidance, minimization was  
20 how staff viewed the translocation effort.

21 MS. BELENKY: Thank you. Then I wanted  
22 to just go back to the discussion of greenhouse  
23 gases from this morning. And I just have a few  
24 questions to clarify the discussion from this  
25 morning. And I believe -- who was talking this

1 morning? It seems so long ago now.

2 HEARING OFFICER KRAMER: Mr. Rubenstein.

3 MS. BELENKY: Yeah, Mr. Rubenstein.

4 MR. HARRIS: Mr. Rubenstein's available  
5 to answer those questions.

6 MS. BELENKY: Okay, thank you. Well,  
7 first I want to say that I think that this  
8 analysis which shows that, or appears to show that  
9 there will be this displacement of greenhouse  
10 gases is fabulous.

11 I mean it's fabulous that a solar plant  
12 could displace this much greenhouse gas use. And  
13 I just want to make sure we're all understanding  
14 what the significance of that is, and how it was  
15 calculated.

16 This calculation is based on the  
17 technology of the proposed project, is that  
18 correct?

19 MR. RUBENSTEIN: Could you be more  
20 specific about which calculation you're talking  
21 about, because there were a couple of them --

22 MS. BELENKY: Oh, okay, certainly.

23 MR. RUBENSTEIN: -- presented this  
24 morning.

25 MS. BELENKY: I'm on page A-6. I think



1       most of my questions go to this issue of the  
2       displacement. There may be a few that are  
3       slightly more general.

4               MR. HARRIS: Mr. Rubenstein, do you need  
5       a copy of the testimony, or do you have a written  
6       copy in front of you?

7               MR. RUBENSTEIN: I'll just pull it down  
8       in just one second.

9               (Pause.)

10              MR. RUBENSTEIN: Page A-6 of our  
11       rebuttal testimony?

12              MS. BELENKY: Yes. Yes.

13              MR. RUBENSTEIN: Thank you.

14              MS. BELENKY: Thank you.

15              MR. HARRIS: Did you find a copy, John?

16              MR. CARRIER: Yes.

17              MR. HARRIS: Okay. Give him just a  
18       minute, Lisa, so Gary can get a hard copy. I  
19       think he's got an electronic copy, but it might be  
20       easier to go through the hard copy.

21              MR. RUBENSTEIN: Okay, I have it in  
22       front of me. Sorry for the delay.

23              MS. BELENKY: Thank you. Well, my first  
24       question is in your opinion if the project was  
25       moved to a different site, basically the same

1 project, would it displace the same amount of  
2 greenhouse gases under your calculations?

3 MR. RUBENSTEIN: If everything else was  
4 the same in terms of the amount of electricity  
5 that was being generated, and the amount of  
6 natural gas that was required for heating the  
7 systems in the morning and occasional dealing with  
8 cloud cover, then, yes, the displacement would be  
9 the same.

10 MS. BELENKY: Thank you. And did you  
11 compare anywhere, I don't see it here, but did you  
12 do a comparison in your testimony between the  
13 proposed project displacement and the displacement  
14 of 400 megawatts of photovoltaics, whether they  
15 would be distributed or utility-scale, I mean did  
16 you do that calculation?

17 MR. RUBENSTEIN: I'm not sure I  
18 understand the question. In the hypothetical what  
19 was going to be displacing what?

20 MS. BELENKY: Instead of the I-SEGS  
21 project, how would photovoltaic compare to these  
22 other numbers? Would it be similar or --

23 MR. RUBENSTEIN: I didn't analyze any  
24 displacement by photovoltaics.

25 MS. BELENKY: Okay. You didn't do that

1       analysis. Thank you. And then in your rebuttal  
2       testimony, you don't identify specifically what  
3       would be displaced, that is which power plants  
4       would not run because of it.

5               So did you do that analysis?

6               HEARING OFFICER KRAMER: That question  
7       was asked this morning. I think it might have  
8       been Mr. --

9               MR. HARRIS: Mr. Hill.

10              HEARING OFFICER KRAMER: And as I recall  
11       he said it was a combination of combined cycle and  
12       some peaker, simple cycle turbines.

13              MR. RUBENSTEIN: If I could be more  
14       precise in the answer, he said that this project  
15       would be expected -- this project meaning Ivanpah,  
16       would be expected to displace some combination of  
17       generation from combined cycle plants and simple  
18       cycle peaking turbines.

19              But to be conservative, our calculation  
20       of the displacement assumed that we were  
21       displacing extremely efficient combined cycle  
22       power plant. That would be the minimal amount of  
23       carbon to be displaced by Ivanpah.

24              MS. BELENKY: Thank you.

25              HEARING OFFICER KRAMER: So you chose

1 the most efficient emitter of carbon?

2 MR. RUBENSTEIN: That's correct. The  
3 most efficient marginal emitter of carbon relative  
4 to this project.

5 HEARING OFFICER KRAMER: So that would  
6 be what we call a conservative assumption?

7 MR. RUBENSTEIN: Yes.

8 MS. BELENKY: My question is maybe  
9 slightly different. Have you identified any  
10 specific power plants?

11 MR. RUBENSTEIN: By selecting the most  
12 efficient technology, we do not need to identify  
13 specific plants, because we have identified the  
14 minimum amount of carbon that would be displaced.  
15 Any other technology that one might reasonably  
16 foresee could be displaced by the energy produced  
17 by this project would only result in the  
18 displacement of more carbon.

19 MS. BELENKY: Okay, let me -- maybe I  
20 should have started with the next question  
21 instead. Does your calculation of displacement  
22 anywhere account for increases in long-term demand  
23 growth?

24 MR. RUBENSTEIN: It doesn't need to  
25 because we're looking at displacement on a

1 megawatt-hour basis. We're looking at the  
2 incremental displacement of carbon by one  
3 generating technology, in this case the Ivanpah  
4 plant by -- displacement of generation, which is  
5 the most efficient marginal generating technology  
6 in California's electric grid which is a gas-  
7 fired, combined cycle plant.

8 So whether the demand overall throughout  
9 California grows or not, the marginal plant is  
10 still going to be some type of gas-fired  
11 technology.

12 MS. BELENKY: I think this --

13 HEARING OFFICER KRAMER: Let me try to  
14 cut through this. And if some other kind of plant  
15 is displaced, then that just means even more  
16 carbon has been displaced, right, than you  
17 assumed?

18 MR. RUBENSTEIN: That's correct.

19 MS. BELENKY: I think my question is  
20 somewhat different, which is we have a certain  
21 amount of plants out there. And we're going to  
22 add another plant. Can you show that some other  
23 plant will go offline, actually come offline,  
24 because this plant is built?

25 MR. RUBENSTEIN: No, I don't expect that

1       there will be a one-to-one correlation between  
2       power plants. The electricity produced by other  
3       plants will be displaced. But there's not another  
4       plant that will simply be dismantled as a result  
5       of a new plant coming online.

6               MS. BELENKY: Thank you. I think that  
7       is probably the last of my questions. I just want  
8       to make sure because we've gone a long way since  
9       this morning, and there were a couple of questions  
10      I had on that testimony.

11             MR. BASOFIN: I have a few questions  
12      very directly related on this. So maybe while Ms.  
13      Belenky is looking I can just kind of jump in.

14             HEARING OFFICER KRAMER: Please go  
15      ahead. And somebody on the telephone is typing  
16      and we are hearing your keyboard. So if you could  
17      mute the phone.

18             MR. SPEAKER: Sorry.

19             MR. BASOFIN: In determining how much  
20      carbon is sequestered on the site through plants  
21      and soil, did the applicant take into account the  
22      loss of carbon sequestration from mowing, the  
23      continual mowing on the site?

24             MR. RUBENSTEIN: We did not  
25      independently assess carbon sequestration onsite.

1       What Mr. Hill described earlier was an analysis  
2       where he assumed that the carbon uptake estimated  
3       by Wohlfahrt in exhibit 1008 was correct.

4               And then conducted a calculation of what  
5       the carbon uptake would be over the entire roughly  
6       4000 acres of the site, assuming that Wohlfahrt's  
7       calculations were correct.

8               MR. BASOFIN: I see. So he didn't  
9       modify the calculation to account for mowing? For  
10      the plant, for the biomass of plant loss from  
11      mowing?

12              MR. RUBENSTEIN: No, because Wohlfahrt's  
13      number simply was talking about how much carbon  
14      would be taken up by the Mojave Desert ecosystem.  
15      And we assumed that, number one, his calculation  
16      is correct. And number two, construction of this  
17      plant, a version of this plant would completely  
18      eliminate that benefit.

19              MR. BASOFIN: Okay. So, --

20              MR. RUBENSTEIN: Which, again, neither  
21      of those assumptions we agree with, but that's --  
22      for purposes of this calculation.

23              MR. BASOFIN: So you assumed elimination  
24      of sequestration on site, not that there would be  
25      plants onsite after construction that might

1 include some sequestration?

2 MR. RUBENSTEIN: That's correct.

3 MR. BASOFIN: Okay. My other question  
4 is -- it's kind of a technical question. Let me  
5 see if I can say it right the first time.

6 So when you did the calculations on how  
7 the project offsets the loss of carbon  
8 sequestration, did you use 400 megawatts, the  
9 maximum instantaneous output? Or did you use the  
10 average output?

11 MR. RUBENSTEIN: As shown in table Alt-1  
12 of our rebuttal testimony, which is on page A-6,  
13 for the balancing calculation, if you will, we  
14 assumed the annual production of 1.44 million  
15 megawatt hours per year.

16 MR. BASOFIN: 1.44 --

17 MR. RUBENSTEIN: Million megawatt hours  
18 per year.

19 MR. BASOFIN: -- million megawatt hours  
20 per year.

21 MR. RUBENSTEIN: All of our calculations  
22 were --

23 MR. BASOFIN: So that --

24 MR. RUBENSTEIN: -- by energy, not  
25 capacity.



1                   HEARING OFFICER KRAMER: But to answer  
2                   his question, that table says it's 400 megawatts  
3                   per hour. So is that full operation -- full  
4                   capacity --

5                   MR. RUBENSTEIN: It's full capacity, but  
6                   not 8760 hours a year.

7                   HEARING OFFICER KRAMER: Right.

8                   MR. RUBENSTEIN: It's less than that.

9                   HEARING OFFICER KRAMER: So 4000 hours  
10                  per --

11                  MR. RUBENSTEIN: 4000 hours --

12                  HEARING OFFICER KRAMER: -- 16 hours a  
13                  day.

14                  MR. RUBENSTEIN: -- hours per day.

15                  HEARING OFFICER KRAMER: Is that 365  
16                  days?

17                  MR. RUBENSTEIN: That's 3600 hours per  
18                  year.

19                  MR. BASOFIN: Okay, 400 megawatts an  
20                  hour for 3600 hours per year --

21                  MR. RUBENSTEIN: Correct.

22                  MR. BASOFIN: -- so to state it  
23                  succinctly.

24                  HEARING OFFICER KRAMER: So that's  
25                  something like 360 days.

1                   MR. RUBENSTEIN: 400 megawatt hours per  
2 hour, 10 hours per day, 360 days per year.

3                   HEARING OFFICER KRAMER: Okay.

4                   MR. BASOFIN: Okay.

5                   MS. BELENKY: I had a similar question.  
6 Maybe I could just jump in because I was confused  
7 by that.

8                   MR. BASOFIN: Please.

9                   MR. BASOFIN: I was confused by the 10  
10 hours --

11                  MR. BASOFIN: Take it away.

12                  MS. BELENKY: -- a day because in other  
13 testimony the applicant has said that, and this is  
14 where I may be confused when you start talking  
15 about capacity versus some other number, that they  
16 would expect 28 percent capacity. And so I'm not  
17 sure how that figures into your 10 hours a day.  
18 How do those two figures relate?

19                  MR. RUBENSTEIN: I'm not sure, either,  
20 except the 10 hours per day is the average  
21 operation on a single day. Whereas the capacity  
22 factor is typically referred to as an annual  
23 number.

24                  MS. BELENKY: And my only problem with  
25 that is that 10 hours is more than 28 percent of

1       24 hours. So I'm just having trouble  
2       understanding how they relate in that way.

3               But the number you used was the 10 hours  
4       a day, that's what's important here.

5               MR. RUBENSTEIN: The number that I used  
6       was displacing the 1.44 million megawatt hours per  
7       year.

8               HEARING OFFICER KRAMER: Any further  
9       questions? Dr. Connor?

10              DR. CONNOR: Yeah, I have some  
11       questions, just a couple of brief questions for  
12       Ms. Lee.

13              HEARING OFFICER KRAMER: Go ahead.

14              DR. CONNOR: Ms. Lee, it's my  
15       understanding that the other -- reviewed eight  
16       alternative project sites, is that correct?

17              MS. LEE: Yes, but -- yeah, they weren't  
18       all retained for analysis -- well, yes, that's  
19       correct.

20              DR. CONNOR: I think that was the number  
21       that was actually reviewed?

22              MS. LEE: Yes.

23              DR. CONNOR: Were any of these  
24       alternative sites located outside desert tortoise  
25       habitat?

1 MS. LEE: No.

2 DR. CONNOR: Okay. Was there ever any  
3 consideration of locating the plant outside desert  
4 tortoise habitat?

5 MS. LEE: We weren't using that as a  
6 criterion. We were looking for the other siting  
7 criterion, which are low slope and high  
8 insolation. And as you can tell from the  
9 applications in front of this Commission and BLM,  
10 that kind of drives you to desert tortoise habitat  
11 for these very large sites.

12 DR. CONNOR: Well, what I'm wondering at  
13 here is, one of those significant features of the  
14 Ivanpah Valley is Ivanpah Dry Lake?

15 MS. LEE: Yes.

16 DR. CONNOR: Which, I believe, from the  
17 FSA is about 35 square miles?

18 MS. LEE: Sounds about right.

19 DR. CONNOR: Was there never any  
20 consideration of siting the plant at Ivanpah Dry  
21 Lake?

22 MS. LEE: We did talk about that. We  
23 didn't actually write it up, but it seems to have  
24 some logic to it in terms of its flatness and  
25 insolation.

1                   But it is -- well, first of all, the  
2                   southern half of the dry lake is in a tortoise  
3                   DWMA desert wildlife management area.

4                   And the northern half is probably the  
5                   most extensively used recreation area in the  
6                   California desert district. It's a land sailing  
7                   site that BLM issues hundreds of permits and has  
8                   thousands of users a year on that site. It's a  
9                   very valuable recreation site from BLM's  
10                  perspective. So we didn't consider it further.  
11                  Because of that, we knew that it was not an option  
12                  to BLM.

13                  DR. CONNOR: Okay, so impact to a  
14                  recreation resource somehow trumped impact to  
15                  listed species?

16                  MS. LEE: It's a land management  
17                  decision really from BLM's perspective. You know,  
18                  BLM is a multiple use agency. And as I'm sure you  
19                  know, they value recreation very highly.

20                  DR. CONNOR: I'm just wondering how, you  
21                  know, one of these resources can be sort of  
22                  decided from the outset as a reason to preclude a  
23                  potentially very good site.

24                  MS. CHAINEY-DAVIS: Michael?

25                  DR. CONNOR: Um-hum.

1 MS. CHAINEY-DAVIS: It's Carolyn. I  
2 just wanted to add that Fish and Game does  
3 typically take jurisdiction of the playas. So,  
4 you know, it's a drylake, it still may flood  
5 intermittently, or at least it's a sink for the  
6 areas ephemeral washes. And although I don't  
7 think we asked specifically, I don't think we took  
8 it to that point that we delineated it, but, you  
9 know, they told us that they do typically would  
10 normally take jurisdiction of a dry lake.

11 DR. CONNOR: I agree, Carolyn. There  
12 are some issues that I'm just thinking in terms  
13 of, you know, as trying to minimize some of the  
14 resource --

15 MS. CHAINEY-DAVIS: Oh, um-hum.

16 DR. CONNOR: I do know that Fish and  
17 Game referenced using the dry lakebed in their  
18 letter.

19 MS. CHAINEY-DAVIS: Oh, did they?  
20 That's interesting. Well, maybe -- you know, we  
21 had a specific conference about that on another  
22 project. And the guidance we got was that they  
23 would normally take jurisdiction for a dry lake,  
24 for example in the Genesis project area. You  
25 know, although it has all the indicators of a dry

1       playa, it flooded to a depth of five feet as  
2       recently as 1983. And so, you know, they can't --

3               HEARING OFFICER KRAMER: This is Paul  
4       Kramer. Let me suggest that if you have policy  
5       differences with BLM, you take it up with them.  
6       And if you believe there is some deficiency in the  
7       designation of project alternatives, that's  
8       something you can discuss in your briefs.

9               If you have any factual questions about  
10      the analysis, --

11              DR. CONNOR: I don't have any additional  
12      questions, Mr. Kramer. I just wondered about  
13      that.

14              HEARING OFFICER KRAMER: Okay. I think  
15      that's all the questions.

16              MR. RATLIFF: I have one. Since this  
17      has kind of been a semi-formal hearing, I was  
18      hoping I'd have the chance to ask at least one  
19      redirect question.

20              HEARING OFFICER KRAMER: Oh, certainly.  
21      I was about to get to you and the applicant.

22              MR. RATLIFF: The question is would a  
23      private land site of reduced acreage likely -- a  
24      private land alternative in a reduced size, would  
25      it be likely to have many of the same problems

1       that at least the one that we looked at here?  
2       Would it be likely to have many of the same  
3       problems as the site --

4               MS. LEE:  The configuration of the site  
5       we looked at was a long, well, it was three units  
6       in a row.  And reducing the size really wouldn't  
7       have eliminated the impacts that we looked at  
8       because they were within proximity to the site on  
9       all sides.

10              So I think the answer is no; I don't  
11       think the impacts would have changed.

12              MR. RATLIFF:  That's all.

13              MR. BASOFIN:  Well, now I think I'd like  
14       to have an informal recross.

15              (Laughter.)

16              MR. BASOFIN:  If Mr. Ratliff has an  
17       informal redirect.

18              HEARING OFFICER KRAMER:  Well, Mr.  
19       Harris, let him go first.  Did you have any --  
20       looked like you were starting to speak.

21              MR. HARRIS:  No, I think I looked like  
22       I'm starting to fall asleep.  Yeah, I don't have  
23       any questions for my own witnesses, so -- and I'm  
24       fine.  So I just hope to be finishing sometime  
25       before date night.  Okay, thanks.



1 HEARING OFFICER KRAMER: Mr. Basofin.

2 MR. BASOFIN: Yeah, Ms. Lee, I think you  
3 stated that you referenced some of the issues with  
4 the residences on the private land alternative, as  
5 well as some of the agricultural issues.

6 I believe your testimony earlier was  
7 that the issues with the residences and the issues  
8 with agriculture could have been reduced to a less  
9 than significant level with a reduced acreage, is  
10 that not correct?

11 MS. LEE: What I said, or what I  
12 intended to say was that we didn't consider  
13 reduced acreage alternatives, so we didn't  
14 evaluate whether or not they could have.

15 It doesn't seem to me that it would be  
16 easy to do, to eliminate those impacts just  
17 because of the density of development. Not that  
18 it's dense, but it's sort of a consistent low  
19 density developed area, that area east of Daggett.

20 MR. BASOFIN: Okay. I guess on the  
21 converse, which issues do you think still would  
22 entail significant impacts even with a reduced  
23 acreage?

24 MS. LEE: Certainly cultural, because  
25 the cultural features that were significant there

1       were linear and parallel to the freeway, which  
2       encompassed the entire site. And there were some  
3       significant cultural features that we've written  
4       up in there that are trails and --

5               DR. CONNOR: And how many acres -- how  
6       much acreage covered the cultural -- I guess you  
7       didn't do an analysis of how many acres the  
8       cultural area encompassed?

9               MS. LEE: I don't think we have acreage  
10      for the cultural sites. They were just -- they're  
11      basically points and descriptions of sites of  
12      historic interest.

13              DR. CONNOR: Okay, but you didn't go  
14      through an analysis of reducing the acreage and  
15      reducing the megawattage and determining if --

16              MS. LEE: That's correct, we --

17              DR. CONNOR: So it's really speculation  
18      as to whether or not impacts would have been  
19      reduced?

20              MS. LEE: It's speculation. It seems to  
21      me it would be very unlikely to reduce those  
22      impacts. And keep the shape, you know, the  
23      configuration of these towers, which is what we  
24      were looking at. It doesn't give you a lot of  
25      flexibility to make the project narrower. You

1 still end up with kind of 1000-acre squares.

2 So there's a limitation with this  
3 technology, which is what we were looking at.  
4 That's how the alternative was defined.

5 DR. CONNOR: But there is an ability to  
6 keep the tower layout and reduce the number of  
7 heliostats to fit it into a 1000-acre square,  
8 right?

9 MS. LEE: There is, we just didn't  
10 analyze that.

11 DR. CONNOR: Okay, thank you.

12 HEARING OFFICER KRAMER: I think we're  
13 done.

14 PRESIDING MEMBER BYRON: Maybe. Well,  
15 are you going to close out alternatives right now?

16 HEARING OFFICER KRAMER: Unless you have  
17 a question.

18 PRESIDING MEMBER BYRON: I just have a  
19 couple of things that I'd like a little bit of  
20 clarification on.

21 Ms. Lee, I'd like to get back just a  
22 little bit more to understand how or why BLM  
23 essentially, in my word, rejected all these  
24 project alternatives.

25 And you described earlier on in your

1 testimony a couple days ago, you know, that there  
2 were sites that -- and I hope I have this right --  
3 that were perhaps environmentally preferred  
4 alternatives that were not acceptable for the BLM  
5 NEPA process.

6 But you didn't say why. And I'd like to  
7 get a sense of why BLM doesn't find these  
8 alternative sites acceptable.

9 MS. LEE: There's an ongoing, I think,  
10 discussion with BLM on how we're approaching  
11 alternatives. And this being the first one, we  
12 struggled with a lot of these issues, as has BLM,  
13 I think, internally.

14 Initially they were focused on the  
15 purpose and need for the project, being a concept  
16 of looking at BLM's ability to approve a right-of-  
17 way grant or not. It was sort of a yes-or-no  
18 decision for them. I think they are moving now  
19 towards a concept of allowing that to be modified.

20 But when we published this FSA, which,  
21 again, was the first one and the first draft EIS  
22 for BLM, the thought was that offsite alternatives  
23 really wouldn't very well meet the BLM's purpose  
24 and need, which was just really to look at this  
25 action.

1                   And that was broadened by BLM somewhat  
2                   with some language in the FSA. They didn't like  
3                   the sites that we had selected, either. From BLM  
4                   perspective, two of the sites we looked at were on  
5                   BLM land with other applications from BrightSource  
6                   pending on them. They didn't think that those  
7                   were really good alternatives.

8                   MR. RATLIFF: If I could just add, they  
9                   didn't think that conceptually it made any sense  
10                  to call a location that had another application  
11                  for it, an alternative to the project. That was  
12                  their -- and I think that was categorical, but it  
13                  may have been limited to another application by  
14                  the same applicant. Because in these cases there  
15                  were applications by the same applicant.

16                  MS. LEE: And we selected them to be  
17                  applications by the same applicant because it was  
18                  very clear that we couldn't look at other BLM land  
19                  with applications from other applicants. Because  
20                  they do have the first right, in BLM's eyes.

21                  And we thought by looking at -- and  
22                  these were also considered in the AFC -- by  
23                  looking at other sites that were BrightSource  
24                  applications on BLM land, that if this one was  
25                  found to have really severe impacts, that maybe

1       there was an option of looking at another  
2       BrightSource application site.

3               Now in this case it happens that since  
4       then those other two sites are both within the  
5       proposed monument area.

6               MR. RATLIFF: And, Commissioner, I think  
7       Ms. Lee answered that really well, but I would --

8               PRESIDING MEMBER BYRON: As with all her  
9       answers.

10              MR. RATLIFF: Exactly. I agree. But  
11       the one thing I would add is that BLM first went  
12       to its NEPA process. And as a custodial federal  
13       land agency, looks at alternatives in a way that  
14       is different than a state agency such as the  
15       Energy Commission.

16              And that has to do with -- and this is,  
17       I mean there's a lot of federal case law on this  
18       point, which is that we look at project objectives  
19       alone as being the basis for alternatives  
20       analysis. We being the state agencies like the  
21       Energy Commission.

22              But federal agencies like BLM look at  
23       purpose and need in two contexts. One is the  
24       context of the project applicant, which is similar  
25       to what our own project objectives perspective is.

1                   But the other is the purpose and need of  
2                   the agency, or the objectives of the agency. And  
3                   if an alternative doesn't serve what they consider  
4                   to be the objectives or the purpose and need of  
5                   the agency, as I understand it, that would not be  
6                   an alternative that they would consider.

7                   And so they have federal directives and  
8                   executive orders and so forth that direct them to  
9                   increase the amount of renewable energy on federal  
10                  land. It doesn't fit with their purpose and need  
11                  to look at alternatives on private land.

12                  So, I hope that helps.

13                  MS. LEE: There's another constraint  
14                  that is a problem for BLM, which is that an  
15                  application -- or if even, for example, the I-15  
16                  alternative which we looked at here, because there  
17                  is no application to BLM to develop that, they  
18                  feel that it's not within their ability to approve  
19                  an alternative that is at a different site on BLM  
20                  land that hasn't -- and it's similar to the  
21                  situation we have at the Commission, that isn't  
22                  fully analyzed with all the surveys.

23                  So they were constrained to not really  
24                  want to look at an alternative that they didn't  
25                  have the ability to adopt. And at the Commission

1       we have that regularly where our alternative sites  
2       are sort of informational really, to let everyone  
3       understand what the impacts are. And, if  
4       necessary, and we've talked about a process by  
5       which they could be adopted. But BLM's got its  
6       own kind of leasing regulations and rights-of-way  
7       regulations that also constrain the way they look  
8       at these applications.

9               PRESIDING MEMBER BYRON: Well, you've  
10       traveled this uncharted course really well. I'm  
11       appreciative of the staff's analysis and  
12       everything that you've done. In fact, before you  
13       release this panel I'd like to thank you all very  
14       much. As long as it ended up going, you really  
15       did whittle down all my questions and concerns.  
16       And some I had not even begun to think of.

17               But I'd like to thank you all very much.  
18       That was very helpful.

19               HEARING OFFICER KRAMER: And let me just  
20       make one more point to follow up your question.  
21       So, Ms. Lee, many of the alternatives in your  
22       analysis were -- they're described as having been  
23       rejected by the BLM. But you still went forward  
24       and analyzed them for purposes of our process  
25       here, right?



1 MS. LEE: Exactly. The analysis on the  
2 four alternative sites that we looked at were at  
3 the same, and in fact, I think in more detail than  
4 we normally would for a siting case. The  
5 categorization was really to allow this to be more  
6 consistent with BLM's process.

7 MR. RATLIFF: Yes, and in our  
8 discussions with BLM, when we had different  
9 perspectives on these things, we basically told  
10 them we would do it our way and they could do it  
11 their way.

12 And so we didn't eliminate alternatives  
13 simply because BLM was uncomfortable with the  
14 approach or felt like it didn't fit with their  
15 purpose and need as an agency.

16 HEARING OFFICER KRAMER: So for our  
17 purposes if BLM rejected an alternative is  
18 probably noise. It's not terribly relevant.

19 MS. LEE: Well, it's relevant in  
20 decisionmaking because optimistically both  
21 agencies will approve the same thing. And that's  
22 part of the challenge.

23 HEARING OFFICER KRAMER: Right, yes, --

24 MS. LEE: Ultimately, yeah.

25 HEARING OFFICER KRAMER: And when we

1 start talking about housekeeping items in a  
2 minute, we probably should touch on just the way  
3 we're going to keep coordinating with then and the  
4 communication.

5 But, thank you, alternatives panel.  
6 It's been a long couple days. We appreciate your  
7 perseverance. And --

8 DR. PAVLIK: May I add a quick point,  
9 please, before the proceedings are ended? This is  
10 Bruce Pavlik calling.

11 HEARING OFFICER KRAMER: We'll take  
12 public comments shortly, but --

13 DR. PAVLIK: Okay. That's fine.

14 HEARING OFFICER KRAMER: So, panel,  
15 thank you.

16 PRESIDING MEMBER BYRON: Thank you.

17 HEARING OFFICER KRAMER: I'll suggest  
18 that we deal with -- we have a round of  
19 introducing exhibits at this point, because we're  
20 about to go into the cleanup round. And that's  
21 after we discuss Mr. Harris' objections, of  
22 course.

23 So, --

24 PRESIDING MEMBER BYRON: The cleanup  
25 round sounds like it's when you score all your

1 points.

2 (Laughter.)

3 HEARING OFFICER KRAMER: Yeah, and all  
4 the values are doubled.

5 (Laughter.)

6 HEARING OFFICER KRAMER: One evidentiary  
7 item, question I have. The other day we  
8 identified -- Dr. Andr, was going to provide us  
9 with a list of those database, I don't know if you  
10 want to call them finds or sightings, or  
11 occurrence, is that the term they used?

12 MR. SUBA: Records --

13 HEARING OFFICER KRAMER: Records, okay.  
14 I have not received a copy of that document. Now,  
15 do you have --

16 MR SUBA: I have it, I don't know what  
17 to do with it. I mean is it an exhibit?

18 HEARING OFFICER KRAMER: We gave it an  
19 exhibit number, I believe.

20 MR. SUBA: Okay, for us it would be  
21 number 1012, that's what I've given it. And I can  
22 provide it as such.

23 HEARING OFFICER KRAMER: Well, that's  
24 your rebuttal testimony, so let's give it -- well,  
25 we could change your rebuttal testimony. You've

1 already written on it?

2 MR. SUBA: Well, I can change the number  
3 if that's okay.

4 HEARING OFFICER KRAMER: Okay, then but  
5 do you have copies for everyone?

6 MR. SUBA: No.

7 HEARING OFFICER KRAMER: Okay, --

8 MR. SUBA: But -- yes, go ahead.

9 HEARING OFFICER KRAMER: -- well, we  
10 could make copies before we leave tonight. Did  
11 you want to look it first, though, Mr. Harris, and  
12 see if you have any issues with it?

13 MR. HARRIS: Yes, please.

14 HEARING OFFICER KRAMER: So would you  
15 show Mr. Harris your original so he can take a  
16 look and --

17 MR. SUBA: Sure.

18 HEARING OFFICER KRAMER: I gather that  
19 the other intervenors are not planning on  
20 objecting to that. But if they are, they could  
21 also take a look, as could the staff.

22 While they're doing that, this may be a  
23 good time to take public comment. For the amount  
24 of time we've spent we've had remarkably little  
25 public comment. One so far. And the same

1 gentleman is going to provide additional public  
2 comment. So I'll just note that uniqueness. In a  
3 couple weeks I'll be going down to Carlsbad, and I  
4 think if they have less than 300 public comments  
5 I'm going to be happy.

6                   Anyway, Mr. Pavlik -- or Dr. Pavlik, if  
7 you want to go ahead. Do you need more than three  
8 minutes?

9                   DR. PAVLIK: No, I will keep my comments  
10 as short as possible. I'll be under three minutes.

11                   HEARING OFFICER KRAMER: Okay, go ahead,  
12 please.

13                   DR. PAVLIK: I just wanted to say to the  
14 Commission how important it is that they not only  
15 look at the Ivanpah project as a single, very  
16 important, project in terms of solar energy  
17 development, but also in terms of the cumulative  
18 impact that the downstream effects that your  
19 decisions are going to have on all of the proposed  
20 solar and even wind projects throughout the arid  
21 lands of the western U.S.

22                   And, you know, as you're aware, I'm  
23 sure, there are many many applications on more  
24 than a million acres of public land.

25                   So whatever standards you set, and

1 particularly on addressing rare plants, but it  
2 really would apply to any resource that's being  
3 impacted, whatever standards you are going to set  
4 for Ivanpah will essentially be the standards that  
5 are set for all the other projects to come.  
6 Because they will point to Ivanpah and say they  
7 had only to do this in order to conserve the rare  
8 plants. And therefore, we don't have to do any  
9 more than that. And that is one thing that  
10 concerns many many people, including myself.

11 And so, if you look at questions of  
12 whether or not a mitigation measure is adequate,  
13 keep that in mind. Because if you don't take into  
14 account, as I said yesterday or the day before,  
15 genetic diversity of population structure now for  
16 Ivanpah rare plants, then for the many many rare  
17 plants across the Mojave and Great Basin that will  
18 be impacted by solar and wind development, they're  
19 essentially going to be subject to the standards  
20 that you set.

21 And the same way, I remember hearing the  
22 discussion about whether the Ivanpah plant would  
23 significantly benefit those plants out there by  
24 reducing global warming. Well, they're only going  
25 to -- that plant is only going to be effective at

1       reducing global warming if we build many many many  
2       more plants, and we correspondingly reduce our  
3       dependency on fossil fuels.

4               So the irony of it is that we're only  
5       going to get to that climate change benefit if we  
6       replicate Ivanpah across the landscape. And we  
7       can -- I'm sure that can happen, you know, on an  
8       engineering standpoint and a financial standpoint.  
9       I have no doubt we know how to do that.

10              But what I'm really concerned about is  
11       that we are going to be replicating the Ivanpah  
12       biological standards across that entire landscape.  
13       And it seems really a bad idea to destroy the  
14       resources that we are trying to protect from  
15       climate change in the process.

16              HEARING OFFICER KRAMER: You're Bruce  
17       Pavlik, correct?

18              DR. PAVLIK: Yes.

19              HEARING OFFICER KRAMER: Okay. When you  
20       say the Ivanpah standards, what do you have in  
21       mind briefly?

22              DR. PAVLIK: Well, for example, if the  
23       mitigation for rare plants is that we're just  
24       going to fence existing rare plants and try to  
25       avoid them, and then implement translocation and

1 salvage, without considering genetic diversity, or  
2 without considering the population structure,  
3 well, that will become the standard essentially  
4 for rare plants on all other sites across the  
5 western U.S.

6 So, to me, that's probably an  
7 ineffective standard, but it will nevertheless be  
8 adopted because you have set the precedent.

9 HEARING OFFICER KRAMER: So are you  
10 saying the only thing that would be acceptable to  
11 you would be full avoidance?

12 DR. PAVLIK: No. I think what would be  
13 acceptable to me would be -- you mean full  
14 avoidance across the entire Ivanpah landscape?  
15 No, I mean I think that some reduction in one of  
16 the three areas, you know, again this idea of  
17 reducing fragmentation is an acceptable  
18 possibility.

19 I think having a very well defined  
20 scientific structure to the mitigation strategy is  
21 absolutely necessary. And I didn't see it in  
22 exhibit 81.

23 So I think. you know, I'm not saying  
24 throw everything out. I am saying let's put in  
25 the best science. Let's not ignore what we've



1       learned about rare plant conservation over the  
2       last 50 years and go back to a gardening standard,  
3       which is what you're talking about by putting  
4       fences around a plant.

5               PRESIDING MEMBER BYRON:  This is  
6       Commissioner Byron.  Mr. Kramer, of course, won't  
7       have the benefit of getting to engage public  
8       comment to this extent when he has 300 of them  
9       next week.

10              But, Mr. Pavlik, I do take your comments  
11       seriously.  And I think my Commission will have  
12       many large issues to weigh in this decision.  So I  
13       certainly hear your comment and I appreciate your  
14       involvement and participation in our proceeding.

15              DR. PAVLIK:  Thank you very much.

16              HEARING OFFICER KRAMER:  Thank you.  Do  
17       we have anyone else -- we have no one here in the  
18       audience that's a member of the public.  Do we  
19       have anyone else on the telephone who wishes to  
20       make a public comment?  This will be the one  
21       opportunity during these hearings.  So, any  
22       takers?

23              Hearing none, I will close public  
24       comment.  We've closed all of the topic areas.  So  
25       now it's time to talk about housekeeping.

1                   PRESIDING MEMBER BYRON: Before we do  
2                   this, Mr. Kramer, I have one last question that  
3                   when we were in discussion late last night about  
4                   this project, that my Advisor just reminded me of.  
5                   I would like to take the opportunity to just ask  
6                   the applicant one last question, if I may.

7                   HEARING OFFICER KRAMER: We'll reopen  
8                   the public hearing.

9                   PRESIDING MEMBER BYRON: I apologize.  
10                  And, of course, they may decline. When we were  
11                  talking at length about financial matters  
12                  associated with the plant, it became clear that a  
13                  lot of this information is confidential.

14                  However, I'm wondering if either the  
15                  applicant or my staff, when I say my staff, the  
16                  Energy Commission Staff, is aware of what the  
17                  payments would be to BLM for the 4000-plus-acre  
18                  project site.

19                  MR. HARRIS: I think Steve De Young is  
20                  going to answer the question. But you're talking  
21                  about the rental payments and not the bonding  
22                  requirements, is that correct?

23                  PRESIDING MEMBER BYRON: You know, I  
24                  assume your displacing cattle, so --

25                  MR. HARRIS: Yes.

1                   PRESIDING MEMBER BYRON:  -- you're going  
2           to get stuck with a payment.  I'm wondering, you  
3           know, does BLM make more off solar than they do  
4           off cows?

5                   MR. HARRIS:  I hope so.  I've been told  
6           I displace cattle before, too, by the way; that's  
7           not the first time I've heard that.

8                   Steve, I think, can answer the rent  
9           question.  I just wanted to know if you were  
10          asking about the bonding, as well.  It sounds like  
11          it's just the rental.

12                   PRESIDING MEMBER BYRON:  If you'd like  
13          to volunteer that information I'll take that, as  
14          well.

15                   MR. DE YOUNG:  Okay, two separate  
16          questions.  With regard to rental, BLM is still  
17          working on that.  They've not come to any closure  
18          as to what the rental structure is ultimately  
19          going to be for --

20                   PRESIDING MEMBER BYRON:  Will you know  
21          that amount before this decision is rendered?

22                   MR. DE YOUNG:  Been led to believe  
23          they're extremely slow, since they've been that  
24          way for a few months now.

25                   HEARING OFFICER KRAMER:  Have they given

1       you even a range?

2                   MR. DE YOUNG:  No.

3                   PRESIDING MEMBER BYRON:  Interesting.  
4       Staff, any insights here?

5                   MR. RATLIFF:  I only know that when I  
6       talked with Mr. Hurshman about it, he said the  
7       same thing.  That they've been having discussions  
8       about it for a long time, and still hadn't made up  
9       their minds, so.

10                  PRESIDING MEMBER BYRON:  Okay.  And the  
11       bonding issue?

12                  MR. DE YOUNG:  The bonding issue, we  
13       will be required to bond for closure of the site.  
14       That is the removal of equipment, the removal of  
15       the pylons.  And then we're also required to bond  
16       for rehabilitation, restoration of the site.  And  
17       that's well over \$10 million worth of bonding just  
18       from that aspect.

19                  And closure is --

20                  MR. STEWART:  The restoration and re-  
21       vegetation bonding is estimated between \$10 and  
22       \$11 million.  BLM accepts cash bonds or cash.

23                  The closure bond is estimated at about  
24       \$5 to \$7 million.

25                  HEARING OFFICER KRAMER:  So it sounds as

1       if the restoration bond is more on the order of an  
2       annuity to fund activities over a rather long  
3       period of time.

4               MR. STEWART: We would like the  
5       restoration bond be an annuity, but no, BLM will  
6       not accept that.

7               HEARING OFFICER KRAMER: No, but I mean  
8       it's designed to fund activities over quite a  
9       period of time.

10              MR. STEWART: It's designed to be put in  
11       a -- the vehicle that we will probably use is a  
12       bond where the money is put into an interest-  
13       bearing account so that it's of the right value  
14       when restoration actually does have to take place.

15              HEARING OFFICER KRAMER: Well, you must  
16       be hoping interest rates are going to go up then.

17              PRESIDING MEMBER BYRON: So let me go  
18       back to the first question and ask it a little bit  
19       differently, if I may.

20              In working the financing for your  
21       project can you give me a sense of the range of,  
22       or the allocation that you've put in for this  
23       aspect of the project?

24              MR. STEWART: Only John Woolard is at  
25       liberty to discuss that number.

1                   PRESIDING MEMBER BYRON: Okay, thank  
2                   you. And I apologize for opening up again. This  
3                   was an issue that came up last night in our  
4                   discussions. And that's helpful to have some  
5                   information.

6                   HEARING OFFICER KRAMER: Then, to be  
7                   fair, do we have any follow-up questions from any  
8                   of the parties? It's not mandatory.

9                   Seeing none, --

10                  MR. BASOFIN: Just on those lines or --

11                  HEARING OFFICER KRAMER: Right.

12                  (Laughter.)

13                  MR. HARRIS: Nice try.

14                  HEARING OFFICER KRAMER: The door was  
15                  opened just a crack.

16                  (Laughter.)

17                  HEARING OFFICER KRAMER: Seeing none, we  
18                  will close the hearing and begin to talk about our  
19                  housekeeping items.

20                  Mr. Andr,'s list. Mr. Harris, did you  
21                  have a chance to look that over?

22                  MR. HARRIS: I had a chance to look at  
23                  it, and I'm not a rare plant specialist. I did  
24                  have Dr. Spaulding look at it. He recognized some  
25                  of the plants by name and some of them he wasn't

1       sure about.

2               You know, the document is what it is.  
3       Assuming that my rare plant folks can make heads  
4       or tails out of it, I think it's acceptable. If  
5       there's something that's missing that a rare plant  
6       biologist/botanist would want, we move it right  
7       back and ask about that.

8               But I think at this point, as long as  
9       we're all clear on the fact that the document was  
10      introduced at the hearing and hasn't been subject  
11      to any verification, other than Mr. Andr,'s  
12      testimony, we're not going to object to its  
13      inclusion.

14              HEARING OFFICER KRAMER: Okay, so let's  
15      make that exhibit 1013. And we'll get it Xeroxed  
16      so people can take a copy home this evening.

17              MR. HARRIS: If you can pdf it and email  
18      it, that would be good.

19              HEARING OFFICER KRAMER: Actually that  
20      might be better, because we have quite a few  
21      people that aren't here.

22              MR. SUBA: I'll email it right now.

23              HEARING OFFICER KRAMER: Great. Will  
24      that be to the proof of service list?

25              MR. SUBA: Yes, sir.

1 HEARING OFFICER KRAMER: Okay, thank  
2 you. Okay, so then let's return to Mr. Harris'  
3 list of objectionable exhibits. And I suppose it  
4 makes sense to do them by party, since he's  
5 organized them that way.

6 That would mean then --

7 MR. HARRIS: I've a bit of an update.  
8 During the break last night the Center for  
9 Biological Diversity suggested that we look at, I  
10 think it's 913, which was their comments on the  
11 PSA for references to some of these documents.

12 And we were able to find all of them  
13 except the last four, 911, 916, 921 and 930. And  
14 I think Ms. Belenky has references you want to  
15 throw back at us here with those documents -- we  
16 couldn't find a reference in the testimony.

17 MS. BELENKY: Yes. The 911, which is  
18 Deacon, the paper by Deacon, which is about  
19 groundwater and it's called Fueling Population  
20 Growth in Las Vegas, how large-scale groundwater  
21 withdrawal could burn regional biodiversity.  
22 That paper was referenced in our opening testimony  
23 at page 8.

24 And the last three items relate to Ms.  
25 Anderson's testimony that she has given here. And



1       they were not specifically cited, but they are  
2       background references that she relied on. And  
3       she's available, has been available throughout the  
4       hearings. And you were able to cross-examine her  
5       on any issue regarding these. And she is also  
6       available and could take the stand, if we could  
7       reopen the hearing, and would be available for  
8       cross-examination on any question you gave related  
9       to these three documents.

10               MR. HARRIS: Okay, so to be clear,  
11       though, they were not cited in her prefiled  
12       testimony. You're relying on the fact that she  
13       was here to allow me to ask questions?

14               MS. BELENKY: They were provided, along  
15       with her prefiled testimony. Our intention was to  
16       indicate that they were her reference material.  
17       And she has been available to you and to the  
18       Committee and to all the parties throughout the  
19       time.

20               Now, if you had an objection or you had  
21       a question about any of these issues or any of  
22       these papers you could have raised it when Ms.  
23       Anderson was testifying.

24               I'm offering that she could still  
25       provide any information you possibly could need

1       about these scientific references.

2               MR. HARRIS: Well, the Committee's heard  
3       my concerns. And I'm not interested in putting  
4       her back on the stand, nor do I think I have an  
5       obligation to draw out of any other party's  
6       witnesses why they listed a citation if they don't  
7       reference it, themselves.

8               And so it may, in fact, be material  
9       she's cited as reference material for her  
10      professional opinion at some point. But there was  
11      no way for me to know that going into the hearing,  
12      how she intended to use those things. And I don't  
13      think I'm obligated to open the door to her  
14      testimony on things that are not relied upon in  
15      her testimony.

16              So, as to those three, I guess I would  
17      continue to have my objections.

18              MS. BELENKY: We would ask for a ruling  
19      on that objection because Ms. Anderson was,  
20      indeed, available. These do reference -- they're  
21      references that directly relate to both her direct  
22      testimony and her rebuttal testimony.

23              If there was some absolute requirement  
24      that they had to be cited, then I am sorry that we  
25      did not understand that. But I thought it was

1 quite clear they are not random references. They  
2 relate directly to her testimony. And she has  
3 been available to all the parties for cross-  
4 examination throughout the hearing.

5 MR. RATLIFF: Ms. Belenky, can I ask,  
6 are these references in her testimony to papers or  
7 studies or treatises, whatever, but they're not  
8 things that she did, herself, but they're things  
9 that she feels are supportive of her --

10 MS. BELENKY: That's right. These are  
11 documents that are supportive, provide some of the  
12 scientific support for her testimony. And were  
13 provided with the testimony.

14 I think the confusion here is that what  
15 I did was took her reference list and put it in a  
16 list so that it would say exhibit number. And if  
17 it had been her reference list that was in the  
18 document entitled her testimony, or the  
19 subdocument entitled her testimony, then we  
20 wouldn't be having this problem.

21 I moved it into a list so that I could  
22 make sure they were all numbered, and all in  
23 order, and provide them in the format that I  
24 thought I understood was required by this forum.

25 I guess my main issue is that I don't

1 think there's any problem with any of these.  
2 These are scientific papers. They're peer-  
3 reviewed papers that have appeared in well known  
4 journals.

5 And there is no question of surprise or  
6 anything else here.

7 HEARING OFFICER KRAMER: Let me ask, as  
8 to the issues to which each of these three  
9 documents relate, was her testimony in as a part  
10 of her written testimony, or written rebuttal  
11 testimony? Or was it just something she first  
12 mentioned here orally before us?

13 MR. HARRIS: She didn't even mention  
14 them orally, as far as I know. And I think you're  
15 right, Lisa, if they had been citations and not  
16 exhibits, then they would have been materials that  
17 we knew she relied upon in preparing her  
18 testimony. And we could have used those for cross  
19 or not. But these were offered as exhibits.

20 HEARING OFFICER KRAMER: I'm going to a  
21 slightly different point, which is if these relate  
22 to a subject that she discussed in her written  
23 testimony, then at least inferentially your on  
24 notice that she was raising that issue. You had  
25 the exhibits. And I would be inclined to allow

1       them in at that point.

2                   MR. HARRIS: Well, I guess even if we  
3       bring her back up here right now, which I don't  
4       propose to do without getting myself killed, she's  
5       not going to be able to testify to the truth of  
6       the matters asserted in those documents because  
7       she didn't prepare them.

8                   She's not going to be available for  
9       cross to the truth of the matters of those  
10      documents asserted.

11                  And, again, they're not incorporated by  
12      reference. They're simply hearsay.

13                  I don't have any problem with, you know,  
14      moving them through the portion of her testimony  
15      as citations, but I'm looking to avoid a situation  
16      that --

17                  MR. RATLIFF: Even as citations, they  
18      would be hearsay. That is what they are. But  
19      there's nothing wrong with having hearsay, and  
20      that's my point, is that we all have hearsay in  
21      our testimony somewhere. And we always have,  
22      there's nothing new about that.

23                  HEARING OFFICER KRAMER: No, I  
24      understand both your arguments. I'm waiting for  
25      the answer to my question about whether these

1 relate to her written testimony.

2 MS. BELENKY: These all relate directly  
3 to her written testimony both on her opening and  
4 her rebuttal.

5 HEARING OFFICER KRAMER: And these were  
6 -- were these supplied to you as the compiler of  
7 the testimony? In other words, her written  
8 testimony came along with the reference list?

9 MS. BELENKY: Yes, absolutely. She  
10 supplied me with the list as well as with the  
11 documents. And I simply put them in the list so  
12 that they could be numbered, because I thought I  
13 was being more organized.

14 HEARING OFFICER KRAMER: Well, as it  
15 goes for all of these types of documents, we're  
16 going to consider them as support for the opinions  
17 that are offered by the experts. And if one of  
18 these documents, for instance, comment on the  
19 distributed PV issue, I mean that would obviously  
20 be off topic and it's not something we would  
21 consider as any sort of -- probably not even  
22 hearsay if offered in that topic area.

23 So, we will take them into evidence --  
24 or at least we will overrule that objection on the  
25 grounds that hopefully I have somewhat

1        articulately stated.

2                    MR. HARRIS: I guess I want to  
3        understand that. Are they part of the  
4        administrative record that you guys will produce  
5        then when the certain litigation follows?

6                    HEARING OFFICER KRAMER: Yes.

7                    MR. HARRIS: That's the issue.

8                    HEARING OFFICER KRAMER: Yes, and then  
9        you'll be able to --

10                   MR. HARRIS: By making them an exhibit,  
11        you --

12                   HEARING OFFICER KRAMER: -- point --

13                   MR. HARRIS: -- have elevated the  
14        status. And that's my objection.

15                   HEARING OFFICER KRAMER: Well, in  
16        essence, they are hearsay that support the expert  
17        opinion. That's what Mr. Ratliff has been saying.  
18        And that's something that if you need to you could  
19        remind the court. And you'll have this discussion  
20        to point to.

21                   MR. RATLIFF: And I haven't, you know,  
22        in my own experience, seen the Commission rely on  
23        purely hearsay evidence ever really that I can  
24        remember on anything that was important for making  
25        a finding. I haven't seen that being a problem.

1                   And so my expectation is that the  
2                   Committee won't do that. So, --

3                   HEARING OFFICER KRAMER: Yeah, we'll --  
4                   if somebody tries to make a lot of hay with one of  
5                   these articles, journal articles, you can be that  
6                   we'll be looking to see that the hay was at least  
7                   first formed in the testimony of the expert.

8                   MR. HARRIS: Thank you. I assume that  
9                   was a ruling, so --

10                  HEARING OFFICER KRAMER: Yes.

11                  MR. HARRIS: -- thank you.

12                  HEARING OFFICER KRAMER: Okay, so that  
13                  takes care of -- and you said the other documents  
14                  have been found to have references and you're no  
15                  longer objecting to them, from the Center?

16                  MR. HARRIS: Well, that was CBD. I have  
17                  the same concerns with the Native Plant Society.  
18                  That is a similar professional article, so I  
19                  assume the same ruling would apply there.

20                  I guess I would like you to consider the  
21                  Defenders', you know, press releases, newspaper  
22                  articles and comments of third parties, and  
23                  whether you want to, on that basis, allow those,  
24                  as well.

25                  HEARING OFFICER KRAMER: Well, --



1 MR. BASOFIN: I can --

2 HEARING OFFICER KRAMER: -- no, let's go  
3 back to 1004. What are the circumstances of that,  
4 Mr. Suba. In the context of the discussion we  
5 just had, can you explain how that document has  
6 come to us?

7 MR. SUBA: Yes. I can explain that, and  
8 if you would allow me a question on this whole  
9 conversation after I explain it.

10 The reference to 1004 is -- it's  
11 addressed in our testimony, however it is a typo  
12 that I left it out of the actual reference to the  
13 fourth paragraph of our opening testimony.

14 In fact, that fourth paragraph doesn't  
15 really make much sense if that reference -- you  
16 don't have that reference in there.

17 Where marginal populations -- the  
18 population of things on the edges of their range  
19 are -- have a different genetic flavor than  
20 perhaps the core area. And these populations, the  
21 rims are perhaps more important to the  
22 preservation of populations. We talked about it  
23 with tortoise, and the same thing with plants.

24 My point is --

25 HEARING OFFICER KRAMER: So this --

1                   MR. SUBA: One last statement, I'm  
2                   sorry, but my point was that we agreed with CEC  
3                   Staff in their assessment of that, as well. And I  
4                   was actually referencing the same document that's  
5                   referenced in CEC Staff's FSA.

6                   So 1004 is actually, I guess you'd call  
7                   it redundant evidence. It's referenced in staff's  
8                   FSA, which is already admitted as evidence.

9                   HEARING OFFICER KRAMER: Although it's  
10                  not been included as an exhibit. Did you show Mr.  
11                  Harris the location where it was referenced?

12                 MR. SUBA: Well, it's supposed to have  
13                 been referenced at the end of paragraph four of  
14                 our opening testimony.

15                 HEARING OFFICER KRAMER: No, I mean in  
16                 the staff's FSA.

17                 MR. SUBA: Oh, on page -- in the bio  
18                 resources of the FSA, page 6.2-38.

19                 MR. HARRIS: Then maybe I can suggest a  
20                 compromise. If Mr. Suba will give me the location  
21                 of where that reference was omitted, if I can --  
22                 just to let my botanists, who are not here --

23                 MR. SUBA: Sure.

24                 MR. HARRIS: -- look at it. And then  
25                 I'll talk to Greg offline afterwards. And if

1       there are any issues that arise, which I doubt,  
2       out of that, then in written form he'd bring them  
3       back to the Committee.

4               But I guess the compromise would be to  
5       accept his oral amendment of his written testimony  
6       and then give me the opportunity to run it by my  
7       experts. And if I have an issue, to provide a  
8       written response. But close the record.

9               MR. SUBA: It's at the end of the fourth  
10      paragraph on page 2 of our opening testimony.

11              MR. HARRIS: Yeah. I've got your  
12      testimony and your correction. I just don't have  
13      my botanists.

14              MR. SUBA: Thank you.

15              HEARING OFFICER KRAMER: Okay, --

16              MR. SUBA: Mr. Kramer, can I ask a  
17      question to clarify something that I don't  
18      understand?

19              HEARING OFFICER KRAMER: Go ahead.

20              MR. SUBA: If we're writing testimony on  
21      a scientific position, we're making statements, we  
22      do or don't -- I've always, I mean it's standard  
23      convention to add references to scientific studies  
24      that have been peer-reviewed and published.

25              But that's called hearsay? And it's not

1       -- and it should be put in testimony? That's what  
2       I'm understanding, is that we shouldn't put  
3       references in the --

4               HEARING OFFICER KRAMER: No, no, I don't  
5       even think Mr. Harris is saying that. He's saying  
6       that it comes in as -- it is hearsay by itself.  
7       And we could not rely on that if you just gave us  
8       an article and the other parties do not have a  
9       chance to cross-examine it. That's just not fair  
10      to them.

11             But in essence, your exhibits are coming  
12      in because your experts relied upon them as a part  
13      of forming their opinion, and therefore it's  
14      perfectly okay to show the backup. But then you  
15      can't go fishing into that document and find some  
16      other point and try to argue in your brief  
17      something that your expert didn't offer as  
18      testimony. I mean you could try it, but the other  
19      side might object.

20             MR. SUBA: Yes, not so much --

21             HEARING OFFICER KRAMER: So in other  
22      words it's about fairness that these sort of  
23      expert conclusions or data, compilations, that  
24      you're relying on have the opportunity to be  
25      tested by the other parties.

1                   MR. SUBA:  And I understand that's why  
2                   we submit them in a timely manner so that there's  
3                   review before the evidentiary hearings begin.

4                   My concern is that many times during the  
5                   last few days there have been generalized  
6                   statements of a scientific nature based on best  
7                   professional opinion.  And those are being put to  
8                   the test versus the contrary opinions in  
9                   scientific papers that have gone through peer  
10                  review, and are based on what are perceived to be  
11                  general concepts in conservation biology.  And I'm  
12                  hearing those called into question --

13                  HEARING OFFICER KRAMER:  Well, you're  
14                  allowed --

15                  MR. SUBA:  -- not the expert, you know,  
16                  my feeling is.

17                  HEARING OFFICER KRAMER:  Well, you're  
18                  allowed to take one of those articles and show it  
19                  to one of the experts and ask them, to attempt to  
20                  impeach them with that.

21                  MR. SUBA:  I see.

22                  HEARING OFFICER KRAMER:  To say you're  
23                  saying X, but this article says Y.  Can you  
24                  explain yourself.

25                  And I think some of you did a little bit

1 of that during this hearing.

2 MR. SUBA: Okay, thank you.

3 MR. RATLIFF: Yeah, Mr. Kramer, I'd just  
4 note, I mean this is an interesting issue here,  
5 but I was just going through and looking at the  
6 very, you know, very professional testimony of Mr.  
7 Powers and Mr. Gray. And they make reference in  
8 there to footnotes which then identify exhibits,  
9 which have been, in turn, filed to support their  
10 point of view.

11 Those are hearsay, as well, I mean, but  
12 they're exhibits that the applicant presumably has  
13 filed. They've got the applicant's exhibit  
14 numbers on them.

15 We aren't talking about throwing those  
16 out simply because no one was here to testify to  
17 the truth of the matter asserted in those  
18 exhibits. We can't cross-examine SCE or NERC or  
19 anyone else --

20 HEARING OFFICER KRAMER: No, any --

21 MR. RATLIFF: -- over those exhibits.

22 But, --

23 MR. HARRIS: We're mixing issues here.

24 HEARING OFFICER KRAMER: Right. And Mr.  
25 Harris, he's backed down every time somebody's

1 showing him a reference. So, --

2 MR. HARRIS: I think the experts can  
3 rely on those things,--

4 MR. RATLIFF: Okay.

5 MR. HARRIS: -- and definitely they can.  
6 In hearsay, you know, that's what --

7 HEARING OFFICER KRAMER: Well, I'm sure  
8 Commissioner Byron is getting a lesson here on  
9 litigation, but since he's an engineer --

10 MR. HARRIS: I still didn't have the  
11 issue --

12 HEARING OFFICER KRAMER: -- he's  
13 probably not finding it that valuable. So, --

14 MR. HARRIS: -- still have the issues of  
15 Defenders' documents. And that one's a little  
16 different.

17 MR. SUBA: Okay, so the documents that  
18 Mr. Harris has --

19 (Parties speaking simultaneously.)

20 MR. HARRIS: Well, hang on --

21 HEARING OFFICER KRAMER: Wait, one at a  
22 time. Mr. Harris is the moving party, so he can  
23 summarize his objection.

24 MR. HARRIS: My concerns with the  
25 Defenders' documents are, as I've stated, the

1 issues we've already kind of passed, but I won't  
2 go back over that ground.

3 Substantively, though, one of the  
4 biggest concerns I have is that these exhibits  
5 were filed on December 18th when direct testimony  
6 was due. There was no testimony filed on December  
7 18th.

8 On January 4th, styled as rebuttal, Dr.  
9 Marlow's testimony was filed on behalf of  
10 Defenders. And so I think we've got a bit of an  
11 illogical conundrum here that the exhibits  
12 supporting the witnesses' testimony were filed  
13 before the testimony was filed.

14 So in addition to the other concerns  
15 I've had about that, I do have this out-of-  
16 sequence concerns. And, you know, Dr. Marlow did  
17 appear to testify, which I think helped to a  
18 certain extent. Which is why all of those  
19 documents are not on the list.

20 But these ones in particular, I wanted  
21 to point out that they were filed as exhibits  
22 before there was any testimony filed.

23 HEARING OFFICER KRAMER: Are you also  
24 concerned that they don't have any apparent  
25 connection to the experts' opinion?



1                   MR. HARRIS: I did not see any  
2                   references to a press release from Senator  
3                   Feinstein and Senators Markley from Dr. Marlow,  
4                   so, it's kind of a dual situation there.

5                   HEARING OFFICER KRAMER: What about 712?  
6                   Oh, Mr. Basofin, it's your turn now to answer  
7                   those objections.

8                   MR. BASOFIN: Okay, thank you. The  
9                   exhibits Mr. Harris cited in his table were not  
10                  intended to be submitted into evidence. They were  
11                  intended for potential use on cross-examination.

12                  And so I'm happy for this to just go in  
13                  as public comment.

14                  As to the concern about Dr. Marlow's  
15                  testimony, I don't think Dr. Marlow's testimony  
16                  having been filed after the exhibits were filed,  
17                  precludes the exhibits from going into evidence.

18                  I mean if the exhibits are connected to  
19                  the testimony, you know, I don't see that the  
20                  timing of their filing is irrelevant. Mr. Marlow  
21                  had been reviewing this project for quite some  
22                  time. And, you know, the process of developing  
23                  exhibits that he relies on in terms of academic  
24                  studies and other materials in the process of him  
25                  developing testimony, you know, were happening

1 concurrently. They just weren't filed  
2 concurrently.

3 HEARING OFFICER KRAMER: I'm not  
4 convinced about the timing issue. However, they  
5 are not connected to his testimony apparently.

6 I'm wondering, even to accept these as  
7 public comment, they are not the statements of --  
8 I mean they're not statements that on their face  
9 appear to be public comment. They don't relate to  
10 this project specifically. The number 712 are  
11 comments apparently on another project, because  
12 San Bernardino County is involved, so it's  
13 certainly not this one. Well, or that may simply  
14 be a locational indicator.

15 And I don't see how we can really, well,  
16 what would the response be to a newspaper article  
17 that doesn't say anything about this project?

18 So I think for those reasons, because  
19 they are not relevant, and because they don't  
20 relate to testimony, we will sustain Mr. Harris'  
21 objection, and we will decline your offer of  
22 compromise to make them public comments for the  
23 reasons I just stated, as well.

24 So, with that, let me just mark those,  
25 so we don't get them again, out.

1 Does everyone have their exhibit list  
2 from yesterday? That's what I'm working off of.

3 (Pause.)

4 HEARING OFFICER KRAMER: And do the  
5 parties have any documents that they think I've  
6 missed?

7 MR. HARRIS: Can I offer a compromise,  
8 or maybe a solution to get to a quick resolution  
9 of the document introduction?

10 HEARING OFFICER KRAMER: Sure.

11 MR. HARRIS: Sounds like you're not  
12 going to admit 704, 708, 710, 711 and 712 from  
13 Defenders. Those are the ones on the list. So I  
14 would move all other parties' documents that have  
15 been identified by number. Anything that's been  
16 omitted, I would move all those documents in at  
17 once for all parties if that'll help speed things  
18 up.

19 HEARING OFFICER KRAMER: Do I hear a  
20 second?

21 MR. RATLIFF: Yes. Yes, you do.

22 HEARING OFFICER KRAMER: Sorry, that's  
23 the wrong meeting.

24 MS. BELENKY: I have an additional  
25 document --

1 HEARING OFFICER KRAMER: Okay.

2 MS. BELENKY: Which it was docketed, it  
3 just didn't get a number. I wanted to make sure  
4 that gets in.

5 HEARING OFFICER KRAMER: What --

6 MS. BELENKY: The revised testimony of  
7 Curtis Bradley, which was submitted on December  
8 22nd, which was the site recalculation. So I've  
9 just numbered that exhibit 940.

10 HEARING OFFICER KRAMER: Okay, Mr.  
11 Harris, any objection to adding that to the list?

12 MR. RATLIFF: Mr. Kramer, one exception  
13 to that is that I wanted to let you know that  
14 exhibit 310 and 313 are the same. So I would  
15 suggest --

16 HEARING OFFICER KRAMER: Okay. Hold on,  
17 let me deal with this one. So 940 was the revised  
18 testimony of Curtis Bradley or -- was it Curtis?

19 MS. BELENKY: 310 and 311 --

20 HEARING OFFICER KRAMER: Okay.

21 MS. BELENKY: They don't look like the  
22 same.

23 HEARING OFFICER KRAMER: And when was  
24 Mr. Bradley's revised testimony dated?

25 MS. BELENKY: I'm sorry, the date on it

1 was the 22nd, December 22nd.

2 HEARING OFFICER KRAMER: Okay. That's  
3 good enough for now. You'll make sure I have a  
4 copy of that?

5 MS. BELENKY: Okay.

6 HEARING OFFICER KRAMER: It was probably  
7 emailed around, but I still need the physical copy  
8 of that.

9 MS. BELENKY: Yes.

10 HEARING OFFICER KRAMER: Okay, Mr.  
11 Ratliff, then you said 3 --

12 MR. RATLIFF: 310 and 313 are the same  
13 document, so why don't you just strike 313.

14 HEARING OFFICER KRAMER: Okay, despite  
15 the very different descriptions, they're the same?

16 MR. RATLIFF: Yes.

17 HEARING OFFICER KRAMER: Okay. So we'll  
18 strike 313 at staff's request.

19 Exhibit 87, Mr. Harris, can you remind  
20 me what that -- or perhaps Mr. Carrier? I made a  
21 place for it and I forgot to write what it was.

22 MR. HARRIS: 87?

23 HEARING OFFICER KRAMER: 87.

24 MR. CARRIER: That's the map which was  
25 produced --

1 HEARING OFFICER KRAMER: Okay. So  
2 that's the map with Mr. Cashen's --

3 MR. HARRIS: No, I'm not moving that in.  
4 I gave that to him as a Christmas present.

5 HEARING OFFICER KRAMER: No, no, no, the  
6 GIS version that's going to come.

7 MR. HARRIS: Oh, okay, all right. I  
8 thought you were talking about the famous marker  
9 incident.

10 HEARING OFFICER KRAMER: With Mr.  
11 Cashen's transects --

12 MS. BELENKY: Where is the GIS version?

13 HEARING OFFICER KRAMER: That's going to  
14 be created next week and sent around. That's the  
15 one where we agreed it would come in and Mr.  
16 Harris will circulate it. Mr. Carrier was  
17 thinking it would take a week or so. And then --

18 MS. BELENKY: Can you give a better  
19 description?

20 HEARING OFFICER KRAMER: If you recall,  
21 was it yesterday -- Tuesday, maybe -- Tuesday  
22 night Mr. Harris attempted to create a frame-able  
23 piece of art, and ultimately it was decided that  
24 rather than do that, Mr. Cashen would provide the  
25 GIS coordinates of his transects to Mr. Harris,

1       who would have his staff then superimpose that  
2       upon an appropriately scaled map of the area.

3               And Mr. Harris was going to share that  
4       with everyone. We've agreed to accept it into  
5       evidence subject to the right of any party who  
6       thinks that he did not do an absolutely perfect  
7       job, to point out his errors in a subsequent  
8       filing.

9               Does that make -- do you understand  
10      that? Whether or not you like it.

11              MS. SMITH: That's fine. Mr. Kramer, I  
12      also sent out a request, a similar request, to  
13      staff and the applicant for field notes, as well.  
14      So that we've got circular field note requests  
15      pending.

16              HEARING OFFICER KRAMER: Well, in your  
17      case I think you'd agreed to provide -- the  
18      witnesses agreed to provide them.

19              MS. SMITH: Yeah, that's fine. Yeah, we  
20      did. And I have them with me. Unfortunately I  
21      only have the only copy. So it looks like I'm  
22      going to have to go back, scan them, and send them  
23      around.

24              HEARING OFFICER KRAMER: Well, I think  
25      you only have to -- well, did the other parties

1 want a copy?

2 MS. SMITH: I need a copy.

3 HEARING OFFICER KRAMER: No, but did the  
4 other parties want a copy of the raw data?

5 MS. SMITH: Staff?

6 MR. RATLIFF: I don't think we ever  
7 asked for that.

8 MS. SMITH: Okay.

9 MR. RATLIFF: I -- do we want that -- I  
10 don't think we want that.

11 HEARING OFFICER KRAMER: Okay.

12 MS. SMITH: It's pretty --

13 MR. BASOFIN: Just to clarify at this  
14 point, none of that can be submitted into the  
15 record and therefore we can't rely on it in  
16 writing our briefs, is that right?

17 HEARING OFFICER KRAMER: Well, you're  
18 going to have it next week.

19 MR. RATLIFF: There is some question as  
20 to what it's to be used for, though.

21 HEARING OFFICER KRAMER: Right, I have  
22 that question, myself. But Mr. Harris has wanted  
23 to mark those paths for the history books, and we  
24 agreed to let him do it.

25 MS. SMITH: Well, I mean, and that's,



1       you know, the reason why I'm asking for their  
2       field notes is because should there be some  
3       reopening down the road, based on what Mr. Harris  
4       has done with Mr. Cashen's work, I just wanted to  
5       preserve the opportunity to have similar, you  
6       know, similar ability to review.

7               HEARING OFFICER KRAMER:  Are those field  
8       notes, Mr. Harris?

9               MR. HARRIS:  Yeah, I don't need to go to  
10       Kinko's.  We have copies.  I'll let you have the  
11       box, too.

12              MR. RATLIFF:  So, Gloria, what you're  
13       asking for from us then are the field notes of  
14       Dick Anderson and Carolyn?

15              MS. SMITH:  I think mostly just Dick's,  
16       because it was pretty clear what Carolyn did, yes.  
17       And -- exactly.

18              MR. RATLIFF:  Okay.

19              MS. SMITH:  I think Carolyn made herself  
20       pretty clear.

21              HEARING OFFICER KRAMER:  So you'll agree  
22       to supply those, Mr. Ratliff?

23              MR. RATLIFF:  Sure.

24              HEARING OFFICER KRAMER:  Okay.  Mr.  
25       Harris, you have a set there?

1                   MR. HARRIS: Yeah, I've got a set for  
2 Gloria because I knew she wouldn't sleep well  
3 without it.

4                   MS. SMITH: Thank you.

5                   MR. BASOFIN: If we're going through a  
6 round of requesting background documents and field  
7 notes, I'd like to have Ms. Lee's --

8                   MR. HARRIS: Actually we're not.

9                   HEARING OFFICER KRAMER: No, Ms. Lee was  
10 -- I don't think she did any field work. She's  
11 the author, coordinator, synthesizer of the work  
12 of many others.

13                  MR. HARRIS: So, can I expect those from  
14 the Sierra Club?

15                  MS. SMITH: Tomorrow morning?

16                  MR. HARRIS: Tomorrow morning.

17                  MS. SMITH: I just have to get to the  
18 office and scan them in.

19                  MR. HARRIS: Right, that's fine.

20                  DR. CONNOR: Mr. Kramer, can I ask the  
21 question, was a decision made that Dick Anderson's  
22 notes were going to be sent to everybody?

23                  HEARING OFFICER KRAMER: Well, are we  
24 talking about a lot of paper, Mr. Ratliff, do you  
25 think?

1                   MR. RATLIFF: I have no idea. It could  
2 be, you know, a piece of paper or a notepad for  
3 all I know. It's --

4                   HEARING OFFICER KRAMER: Okay, --

5                   MR. RATLIFF: Maybe illegible, it may  
6 be --

7                   HEARING OFFICER KRAMER: -- well, these  
8 notes are not a formal exhibit, so if you want a  
9 copy let Mr. Ratliff know.

10                  DR. CONNOR: Okay, I'll do that.

11                  HEARING OFFICER KRAMER: I'm basically  
12 sitting here talking about an exchange of data  
13 that's going on between the parties, basically  
14 outside the hearing process. So, --

15                  DR. CONNOR: Okay.

16                  MR. RATLIFF: And given my unreliability  
17 on such matters, I would ask you that you ask Mr.  
18 Kessler for it, because he's more likely to be  
19 responsive.

20                  HEARING OFFICER KRAMER: Okay, ask Mr.  
21 Kessler.

22                  DR. CONNOR: Okay, great. Thank you.

23                  HEARING OFFICER KRAMER: Okay, so let's  
24 see. We've added exhibit 87, Mr. Cashen's map  
25 with his transects. We'll get a better title

1 eventually.

2 To be clear we decided the other day  
3 exhibit 314, that's the email from Mr. Pavlik,  
4 that's coming in as public comment. But it's  
5 still useful.

6 One of the other purposes that Mr.  
7 Ratliff may not have mentioned when he was  
8 discussing exhibits, is giving them a number just  
9 makes it possible for us to refer to them in the  
10 transcript and in our briefs. And it's just  
11 convenient.

12 So that's probably the main reason why  
13 we numbered Mr. Pavlik's comments.

14 Are there any other documents that the  
15 parties can think of that I left out for some  
16 reason?

17 DR. CONNOR: Mr. Kramer, there's a  
18 couple of documents that are not on -- that  
19 project list?

20 HEARING OFFICER KRAMER: And what are  
21 those?

22 DR. CONNOR: I'm assuming it hasn't been  
23 updated, but currently the list stops at exhibit  
24 516. And 516 is our rebuttal testimony.

25 HEARING OFFICER KRAMER: We now have 517

1 as your opening testimony.

2 DR. CONNOR: Okay, okay, great. And  
3 then 518 was going to be the three maps from the  
4 draft revised recovery plan.

5 HEARING OFFICER KRAMER: Oh, that's  
6 right.

7 DR. CONNOR: I used one of the maps in  
8 my presentation. I made hard copies of this  
9 with --

10 HEARING OFFICER KRAMER: Let me stop you  
11 there, because I think I can short-circuit that.

12 DR. CONNOR: Okay.

13 HEARING OFFICER KRAMER: All of your  
14 maps were from the NEMO, correct?

15 DR. CONNOR: No.

16 HEARING OFFICER KRAMER: Or from one of  
17 the other plans that we're proposing to take  
18 notice of?

19 DR. CONNOR: The maps that I'm talking  
20 about now that I referred to as exhibit 516 are  
21 from the draft revised recovery plan.

22 HEARING OFFICER KRAMER: Okay.

23 MS. BELENKY: And just to clarify, that  
24 is one of the exhibits we discussed would be  
25 noticed, officially noticed, the list that we were

1       going to -- that I put together. I haven't sent  
2       it --

3               HEARING OFFICER KRAMER: Okay, so what  
4       is 518 then?

5               DR. CONNOR: What it was it's figure 1,  
6       figure 2 and figure 5 from the draft revised  
7       recovery plan.

8               HEARING OFFICER KRAMER: 518 or 516?  
9       No, I'm sorry, 516 is your rebuttal testimony.  
10      Okay, so you have three maps from the draft  
11      recovery plan, and I think before we need to worry  
12      about introducing that as an exhibit, we can  
13      discuss whether we're going to take official  
14      notice of that document. In which case, you'll  
15      just be able to refer to it directly.

16              DR. CONNOR: I'm happy either way. I  
17      just wanted to make it clear that I actually did  
18      use one in my presentation, that's all.

19              HEARING OFFICER KRAMER: Okay, --

20              DR. CONNOR: Just there, you know, it  
21      was used in --

22              MR. BASOFIN: I think, Mr. Connor, if  
23      I'm not mistaken I believe you wanted to have  
24      these three maps entered into evidence separate  
25      from the draft recovery plan, to be considered as

1 an exhibit unto themselves.

2 HEARING OFFICER KRAMER: No, he just  
3 wants to be able to refer to them.

4 (Parties speaking simultaneously.)

5 DR. CONNOR: (inaudible) whatever is  
6 most expedient.

7 HEARING OFFICER KRAMER: Okay, so we  
8 touched on this topic the other day. Is there a  
9 list that somebody created of the five or six  
10 documents you were speaking of that you wished to  
11 take official notice of?

12 MS. BELENKY: I did create a list on an  
13 email. I don't know if somebody else also did it.

14 Let me -- I'll just go through them very  
15 quickly. The West Mojave Plan Amendment. The  
16 CDCA Plan, the basic underlying plan, which the  
17 West -- not the West Mojave, I'm sorry -- the  
18 NEMO, the northern and eastern Mojave --

19 MR. SPEAKER: Can you hang on just a  
20 minute.

21 MS. BELENKY: Sorry. I could also email  
22 this around, if that would help.

23 MR. HARRIS: Yes.

24 MS. BELENKY: Okay, I'm not sure. I  
25 didn't want to email to everybody -- John Kessler,

1       and --

2                   PRESIDING MEMBER BYRON:  Pretty soon the  
3       evidentiary record will have to have an electronic  
4       hookup to, at least to the network here.

5                   HEARING OFFICER KRAMER:  Yeah, we'll  
6       have a live website some day, I suppose.  Or would  
7       Twitter work for this?  It would keep people to  
8       short statements, yes.  I'm liking that idea.

9                   I think it would be sufficient today if  
10      somebody would just read all the documents and  
11      maybe expand the acronyms like CDCA, just for the  
12      record.

13                  MS. BELENKY:  Well, I can tell you the  
14      list.  I have it right here.  It's -- and there  
15      are links, hot links, on the web for all of them.  
16      So there's the Northern and Eastern Mojave Plan,  
17      which is a plan amendment to the BLM's underlying  
18      California Desert Conservation Area Plan.  And  
19      those are both on BLM websites.

20                  MR. SPEAKER:  What's the dates?

21                  MS. BELENKY:  The NEMO plan, I believe,  
22      was adopted in 2002.  And the CDCA plan was  
23      adopted in 1980 with various amendments.  And  
24      there is a version with all the amendments up to  
25      1999 in one place on the link.  It's really pretty



1       simple to find them. And these were all  
2       referenced in the -- those were both referenced in  
3       the FSA/DEIS.

4               Then the next three documents would be,  
5       that are all on the same site, on the Fish and  
6       Wildlife site, which I will send a link for, are  
7       the Desert Tortoise Recovery Plan from 1994, the  
8       2008 Draft Revised Recovery Plan for the Desert  
9       Tortoise. And the 2007 Rangewide Desert Tortoise  
10      Population Monitoring. And all of these have been  
11      discussed in these hearings.

12             DR. CONNOR: I had that one introduced  
13      as an exhibit.

14             MS. BELENKY: He already introduced that  
15      one.

16             DR. CONNOR: Okay.

17             MS. BELENKY: So we can take that off.  
18      The last one is the document that the map that we  
19      were talking about today with the orange and  
20      different colors of the habitat modeling, which is  
21      called Nussear, which is N-u-s-s-e-a-r. He's the  
22      lead author. And it's a USGS document, and it's  
23      called Modeling Habitat of the Desert Tortoise in  
24      the Mojave. And it's from, I believe, 2009. So I  
25      have a link for that, as well.

1                   MR. RATLIFF: Isn't that last one part  
2 of the applicant's and the staff's exhibits  
3 already?

4                   MR. BASOFIN: And Defenders.

5                   MS. BELENKY: You put in the whole  
6 thing.

7                   DR. CONNOR: And the Sierra Club.

8                   MS. BELENKY: Okay, you all put in the  
9 whole thing; we'll take those last two off.  
10 Great. So then we're down to four documents  
11 again.

12                  MR. RATLIFF: And some of those  
13 documents are big documents, so what we want to do  
14 is make them exhibits, but we want to, if we can,  
15 not run a whole lot of paper, and provide --

16                  MR. HARRIS: Links.

17                  MR. RATLIFF: -- links, so if that's  
18 acceptable, we'll do that.

19                  HEARING OFFICER KRAMER: Yes, certainly.  
20 So will somebody circulate a document, say a Word  
21 document, with, you know, hot links in it?

22                  MR. DE YOUNG: I think we've got a  
23 couple more to add to the list.

24                  MS. BELENKY: Okay.

25                  DR. CONNOR: Could I just raise one

1       little concern?   And that is that the draft  
2       revised recovery plan is available on Fish and  
3       Wildlife Service's website, but I'm assuming that  
4       once they actually issue the final version they  
5       will remove that.

6                   HEARING OFFICER KRAMER:   Well, I'll be  
7       capturing electronic versions once I get the  
8       lists, for the file -- for the official file.   So  
9       don't worry about that.

10                  Mr. De Young, you wanted to suggest  
11       adding a couple more?

12                  MR. DE YOUNG:   Yeah, we've got two out  
13       of the Federal Register.   Would it be better just  
14       to give Federal Register citation, or do you want  
15       the title?

16                  MR. HARRIS:   Read as much as you can,  
17       make Peter work.

18                  HEARING OFFICER KRAMER:   Okay, what are  
19       they, roughly?

20                  MR. DE YOUNG:   First one is 55FR12178  
21       through 12191.

22                  HEARING OFFICER KRAMER:   12178?

23                  MR. DE YOUNG:   Correct.   Through 12191.

24                  HEARING OFFICER KRAMER:   And what is  
25       that?

1                   MR. DE YOUNG: That is the Endangered  
2                   Threatened Wildlife and Plants Determination of  
3                   Threatened Status for the Mojave Population of the  
4                   Desert Tortoise.

5                   HEARING OFFICER KRAMER: And which other  
6                   ones?

7                   MR. DE YOUNG: The second one is  
8                   59FR5820 to 5866.

9                   HEARING OFFICER KRAMER: That was 50  
10                  what FR?

11                  MR. DE YOUNG: 59FR5820 to 5866.

12                  HEARING OFFICER KRAMER: And that is?

13                  MR. DE YOUNG: That is Rules and Regs  
14                  Determination of Critical Habitat for the Mojave  
15                  Population of the Desert Tortoise Final Rule.

16                  HEARING OFFICER KRAMER: Okay. Any  
17                  others?

18                  MR. RATLIFF: Steve, are there links for  
19                  that?

20                  MR. DE YOUNG: Yeah. There are links in  
21                  the list that I've got here.

22                  MR. RATLIFF: Okay, great. And you're  
23                  going to --

24                  MR. DE YOUNG: I'll email it to the  
25                  proof of service.

1 MR. RATLIFF: Great, thanks.

2 (Pause.)

3 MR. DE YOUNG: I may have one more that  
4 I missed. I'm sorry. It's a BLM 2005 Final  
5 Environmental Impact Report and Statement for the  
6 West Mojave Plan, the Habitat Conservation Plan,  
7 the California Desert Conservation Area Plan  
8 Amendment. Is that in one of yours or not?

9 MS. BELENKY: The West Mojave?

10 MR. DE YOUNG: Yeah.

11 MS. BELENKY: I didn't know that we had  
12 discussed entering the West Mojave Plan, but I  
13 don't remember anyone discussing it before. And I  
14 don't remember anyone actually having any  
15 testimony on the West Mojave Plan. But maybe I've  
16 forgotten. And --

17 MR. HARRIS: We'll check. We think  
18 maybe -- I don't know -- Attorney Connor is on the  
19 phone, I thought Western Watersheds referred to  
20 this document.

21 DR. CONNOR: I don't remember referring  
22 to it, but I mean it's possible, but I certainly  
23 don't remember. I had certainly mentioned the  
24 West Mojave, but not necessarily the West Mojave  
25 Plan.

1                   MS. BELENKY: And I would just like to  
2                   be clear. The reason I'm confused is because I  
3                   don't think it was testified to, and as you know,  
4                   we're involved in litigation on that plan. And so  
5                   I'm not sure what your basis is for introducing it  
6                   here, what issues you would be relying on it for,  
7                   since it hasn't been discussed.

8                   And since it is in active litigation,  
9                   and we are -- I'm not -- I'm just not sure what  
10                  your point is.

11                 MR. HARRIS: Apparently it is in the  
12                 FSA. It's been referenced in several places. But  
13                 I guess I want to be clear on something, too. The  
14                 Commission has asked us to consider briefing  
15                 override issues, and my understanding on that is  
16                 that takes into consideration anything that they  
17                 can take official notice of. And so, at least as  
18                 to the override, so.

19                 MS. BELENKY: I don't object, but I do  
20                 want -- I want to signal to you that if you  
21                 attempt to rely on something about the West Mojave  
22                 Plan, we have already had a ruling from a federal  
23                 judge on it. And then you will be opening the  
24                 door to a lot of unnecessary briefing.

25                 So, to the extent that you have some

1 major point to make about the West Mojave Plan, I  
2 just wanted to make that clear. I have no  
3 objection to having this federal document  
4 officially noticed.

5 HEARING OFFICER KRAMER: Okay, then,  
6 anything else, Mr. De Young?

7 (Pause.)

8 HEARING OFFICER KRAMER: So, you're --

9 MR. HARRIS: We think -- he thinks it's  
10 been covered, so I'll leave it alone. I'm tired.

11 HEARING OFFICER KRAMER: Okay. Well,  
12 this is a good time to take advantage of you,  
13 then.

14 (Laughter.)

15 HEARING OFFICER KRAMER: Okay, so, Mr.  
16 Connor, then -- well, on behalf of the Committee  
17 I'll rule that we will take official notice of  
18 those documents. I'm going to ask somebody to  
19 circulate the list to everyone. And if there are  
20 some concerns about -- not about whether a  
21 document was added, because we just decided that.  
22 But about its description or something like that.  
23 Then we can talk about that via email, or you can  
24 certainly make those objections known via email.

25 And, please, whoever compiles the list

1 add the links to it, just for everyone's  
2 convenience.

3 Okay. So, Mr. Connor, with that I don't  
4 think you need to add those exhibits. Would you  
5 agree?

6 DR. CONNOR: I think, if I remember  
7 correctly, I did at least mention it when I showed  
8 the maps in my testimony, where the map was from.  
9 Hopefully I did.

10 HEARING OFFICER KRAMER: Okay, so then  
11 -- and you referred to it by number?

12 MR. BASOFIN: I just want to --

13 HEARING OFFICER KRAMER: Okay. Then,  
14 Mr. Basofin, you have his copies, as I understand  
15 it?

16 MR. BASOFIN: I have his copies and, Mr.  
17 Connor, I think it was your intent to have these  
18 maps as a separate exhibit.

19 DR. CONNOR: That was what I was  
20 intending to do, yeah. That's why I left them.

21 HEARING OFFICER KRAMER: Okay. Will you  
22 pass them out, then, so the others --

23 MR. BASOFIN: I can pass them out, I  
24 have copies of them.

25 HEARING OFFICER KRAMER: Please pass



1       them out and we'll ask if the parties have any  
2       objection to receiving --

3               MR. HARRIS:  Oh, are these the three  
4       maps that Dr. --

5               DR. CONNOR:  I emailed them out last  
6       week, last Thursday, I think.

7               MR. HARRIS:  We have no objection to  
8       these documents.  They're all parts of publicly  
9       available documents.  I thought I'd indicated that  
10      to Michael --

11              HEARING OFFICER KRAMER:  Right, they're  
12      just another copy,

13              MR. HARRIS:  If I hadn't, I apologize.

14              HEARING OFFICER KRAMER:  Okay, so  
15      exhibit 518 is Mr. Connor's map excerpts.  I'll be  
16      more precise when I get my copy and go back to my  
17      office to revise the list.

18              With those additions and corrections, --

19              DR. CONNOR:  -- copies --

20              HEARING OFFICER KRAMER:  No, we're fine  
21      with the copies.

22              DR. CONNOR:  Okay, great.  Thank you.

23              HEARING OFFICER KRAMER:  And then with  
24      exhibits 704, 708, 710, '11 and 12, excluded, Mr.  
25      Harris has made a motion that all of the exhibits,

1 all the remaining exhibits be accepted into  
2 evidence. Is there any objection?

3 MR. SUBA: The new exhibit 1013 --

4 HEARING OFFICER KRAMER: 1013 would be  
5 included in that motion.

6 MR. SUBA: But that's pending your  
7 review or --

8 MR. HARRIS: Which one's 1013.

9 MR. SUBA: That's the new list, Andr,'s  
10 list --

11 MR. HARRIS: Oh, I just asked -- I've  
12 already done it. I just asked to be able to email  
13 that to my botanists to make sure that they  
14 understand it and they don't think there's  
15 anything additional they need, or anything off it.

16 I don't mind moving it in at this point,  
17 pending that review. And if they come back and  
18 say they'd like something additional, I'll work  
19 with Greg and we'll work it out and file  
20 something.

21 HEARING OFFICER KRAMER: Okay. Seeing  
22 no objection, is that correct -- those exhibits  
23 are received.

24 Okay, we've covered the exhibit list and  
25 Mr. Harris' exclusions.

1                   Briefing schedule. The email I sent out  
2                   last week I think it was, said it would be three  
3                   weeks after the transcripts are available. My one  
4                   thought about that is that's a moving target.

5                   It may be that the best way to proceed,  
6                   would the parties prefer that we set a specific  
7                   date. We assume that it'll take two weeks for the  
8                   transcripts, and then add another three to that?  
9                   Experience tells me that, you know, you shouldn't  
10                  worry that they're going to be available in the  
11                  next few days, because there's the work flow, and  
12                  it always seems to come about 10 to 14 days after  
13                  the hearings.

14                 MS. SMITH: Even for a transcript of  
15                  this size? Is it overly ambitious to think that  
16                  we could get it in two weeks.

17                 HEARING OFFICER KRAMER: Peter? No?  
18                  And I'll also note that although this data point  
19                  may give you pause because we just received the  
20                  transcript from the hearing on December 14th this  
21                  week. I think it's now up on the website.

22                 So maybe it would be best then to just,  
23                  when the transcripts are available I will send out  
24                  a document under my signature. I won't ask the  
25                  Committee to get involved in that. Just telling

1       you when they were received. And in that email I  
2       will provide the specific deadline date.

3               And then we also had said, I believe it  
4       was, rebuttal briefs would be due ten days after  
5       the opening briefs.

6               In those briefs the Committee would like  
7       you to address anything you want to talk about,  
8       but also the question from our discussion, well,  
9       actually beginning in December, about visual  
10      impacts. And that's the question about whether  
11      cumulative impacts should be determined on the  
12      basinwide basis, in essence the Ivanpah Valley  
13      area. Or in the larger desert area, as staff has  
14      done in their analysis.

15              So we want your thoughts and both your  
16      arguments and any legal, arguments legal on policy  
17      or otherwise on that topic.

18              We also invite your opinions and  
19      thoughts and legal arguments on whether or not if  
20      the Committee finds that there are significant  
21      unmitigatable impacts, or there are violations of  
22      LORS, that we should override those and  
23      nonetheless approve the project in some form or  
24      another.

25              And also we invite your thoughts on

1       whether any particular impacts are significant or  
2       are not. In other words, you can -- in each of  
3       these cases this is your opportunity to try to  
4       tell us what we should say in the decision and  
5       what we should conclude.

6               And after considering all those  
7       arguments we will, of course, issue a proposed  
8       decision.

9               The final item on our list is this --  
10       and I say this only because I gather from Mr.  
11       Harris' questions the other day, that he is  
12       somewhat skeptical that -- the applicant is  
13       somewhat skeptical that some of the plant species  
14       that are not officially listed on a federal or  
15       state list should be given, in effect, protected  
16       status under CEQA.

17              Mr. Harris, if you're conceding that  
18       point, and you're not going to make that argument,  
19       I guess -- and you're willing to tell us that  
20       today, then that might save some work for some  
21       people.

22              But we want to hear about the law and  
23       the application of the law to the facts regarding  
24       those plants that are listed basically on the  
25       Native Plant Society's databases. And we heard

1       there are at least three levels. And whether they  
2       should be considered or given the status as rare  
3       plants under CEQA. I may not be using the precise  
4       language of CEQA, but is that clear?

5               MS. SMITH: Yeah.

6               MR. HARRIS: Well, I can tell you I  
7       think there are complex issues of both fact and  
8       law related to rare plants, and we intend to brief  
9       them.

10              HEARING OFFICER KRAMER: Okay, well,  
11       then the other parties should be prepared to do  
12       so, as well.

13              MR. HARRIS: Will they tell me what else  
14       they're briefing?

15              (Pause.)

16              HEARING OFFICER KRAMER: So those are  
17       our issues. Are there any others that the parties  
18       want to identify at this point in time? At least  
19       that they're planning on briefing?

20              MS. SMITH: I'm not going to tell you  
21       now.

22              HEARING OFFICER KRAMER: Yeah, I thought  
23       some of you might want to surprise us, keep it  
24       interesting.

25              Okay, that's briefing.

1                   Public comments. Because this is a  
2                   joint CEQA/NEPA process, at least certainly the  
3                   FSA/DEIS was serving that function, and to make it  
4                   easier on the public, we've committed to basically  
5                   create a one-stop shop is the wrong word, but  
6                   anyway, one-stop repository so the public can make  
7                   comments on the project. And it will go to both  
8                   the BLM and to the Commission for consideration.

9                   I need to look at the notice and confirm  
10                  what that deadline date is, but it is -- did I put  
11                  it in here?

12                 MS. BELENKY: They use a timeframe.

13                 HEARING OFFICER KRAMER: Oh, yes. No, I  
14                 did.

15                 MS. BELENKY: I think it's February 11th  
16                 for BLM.

17                 MR. HARRIS: That's my recollection, as  
18                 well, the federal 90-day period closes on February  
19                 11th.

20                 HEARING OFFICER KRAMER: I thought I  
21                 converted that to a date in here, but I guess I  
22                 didn't. So, it is the date that is established in  
23                 the BLM's notice that came out in -- I have it on  
24                 November 13, 2009. So it would be roughly 90 days  
25                 past that point.

1                   But if you want to be there and get your  
2                   comment in on the last day, you had better consult  
3                   that notice to make sure that you get the right  
4                   date. We'll leave it at that. So I won't commit  
5                   to a different date and cause problems for us.

6                   We will -- I'll talk to staff offline  
7                   about how we're going to make those available to  
8                   all the parties, but my instinct is that we'll  
9                   just bundle them all up in one package, probably  
10                  scan them, and then send them around  
11                  electronically, something like that.

12                  But is there any party who wants to --  
13                  I'm not inclined to have us distribute them as  
14                  they come in, because that's, you know, more  
15                  complicated effort. Is any party, first of all,  
16                  really interested in seeing all the comments?  
17                  Does any party want to make a compelling case that  
18                  they should receive them any earlier than shortly  
19                  after the deadline when they are bundled up?

20                  Seeing none, I guess that's how we'll  
21                  handle it.

22                  I didn't make this announcement earlier,  
23                  but the Commission has a policy that when -- and  
24                  it is in accord with a directive we received from  
25                  the Governor, I think it was last year, that the



1 members of the Committee, that includes the  
2 Hearing Officer, Advisers and the Commissioners,  
3 will not accept anything of value from an  
4 applicant.

5 So vis-a-vis the box dinners we had the  
6 other night, we will need to get from Mr. De Young  
7 an estimate of his cost of those. We can do it  
8 offline if you like. And we will be reimbursing  
9 them for that amount so that we are in no way  
10 beholden to the applicant.

11 MR. STEWART: Those were 600 bucks  
12 apiece, weren't they, Steve?

13 (Laughter.)

14 HEARING OFFICER KRAMER: That could  
15 change things.

16 MR. DE YOUNG: -- 75 apiece.

17 HEARING OFFICER KRAMER: Let's see, then  
18 the last item, it's in the nature of argument. We  
19 talked about giving a little bit of time to Mr.  
20 Harris' request on behalf of the applicant that  
21 the compliance process be streamlined so that both  
22 BLM and the Commission's compliance officer don't  
23 have to sign off on all the deliverables.

24 I suppose it's unfortunate that Mr.  
25 Hurshman's knee prevents him from being here,

1       because we don't have -- well, do we have anyone  
2       on the phone from the BLM still?

3               MR. RATLIFF: I don't think we do, but  
4       we did contact Mr. Hurshman with this issue, and I  
5       can read what his email message back to us was.

6               HEARING OFFICER KRAMER: Okay, go ahead.

7               PRESIDING MEMBER BYRON: Please.

8               MR. RATLIFF: It says: John, I will try  
9       to join, as previously indicated. The BLM  
10      authorized officer is responsible for assuring the  
11      applicant follows all terms, conditions and  
12      stipulations contained in a BLM-issued right-of-  
13      way grant."

14              "If a grant holder proposes substantive  
15      changes or modifications to those terms and  
16      conditions the BLM AO is the responsible official  
17      to make those changes. And it cannot be delegated  
18      to the state."

19              "I previously indicated that for minor  
20      project changes, BLM and CEC could develop an  
21      agreement that would recognize and document minor  
22      project changes with a single approval. Since BLM  
23      and CEC do not have such an agreement or MOU in  
24      place at the present, BLM cannot defer to a single  
25      approval entity."

1                   HEARING OFFICER KRAMER: And that was  
2                   talking about something that sounded more like an  
3                   amendment than just, you know, signing off on a  
4                   mowing plan or something like that.

5                   What is your understanding about how  
6                   that would apply to the day-to-day compliance  
7                   deliverables that --

8                   MR. RATLIFF: Well, keep in mind, we  
9                   moved a lot of things intentionally from the  
10                  conditions to the verification. The verifications  
11                  can be changed by the Commission Staff.

12                  And I think he's saying, you know, to  
13                  the extent that those change, BLM has to agree as  
14                  well.

15                  HEARING OFFICER KRAMER: Okay, so, Mr.  
16                  Harris, --

17                  MR. RATLIFF: Right now if you delegate  
18                  it purely to the Energy Commission's compliance --  
19                  what is it, compliance -- it's project manager,  
20                  then that would be a unilateral decision on our  
21                  part that BLM would not be included in.

22                  I read Mr. Hurshman's statement to mean  
23                  we have to be included in those so we can know if  
24                  there's going to be any kind of a change in the  
25                  verification that accompanies the condition.

1                   HEARING OFFICER KRAMER: And do you  
2 understand that BLM is going to use the exact  
3 same, or nearly the same, conditions that are  
4 proposed for this permit in their permit?

5                   MR. RATLIFF: Well, they'll have a  
6 chance to see what our conditions are, obviously.  
7 And they can -- I would think there would be an  
8 effort to do something that's congruent. I mean  
9 that's the whole point of the exercise, I think.  
10 And I think they understand that. So I assume  
11 they'll -- if they approve the project, they'll  
12 approve it in the same form that we did, or that  
13 we'll try to reconcile it in some way.

14                  HEARING OFFICER KRAMER: Okay.

15                  MR. RATLIFF: But it is an interesting  
16 question because you have two approvals and they  
17 aren't at the same time.

18                  HEARING OFFICER KRAMER: Mr. Harris.

19                  MR. HARRIS: I'm pleased, hearing the  
20 email. I think first a couple things. We  
21 absolutely understand that there are certain non-  
22 delegatable duties that both the state agencies  
23 have related to the state issues, and the federal  
24 agencies related to federal issues. And we get  
25 that.

1                   We were looking really for expediency  
2           here. And, you know, maybe there's a crafty -- a  
3           way to craft some language that would allow for  
4           the possibility of a future MOU, and I was  
5           thinking something along the lines of instead of  
6           saying CPM and BLM-authorized officer, you know,  
7           maybe a defined term like the compliance committee  
8           or something. And let the two entities decide,  
9           you know, as to this issue we both meet approval,  
10          so condition 1, you know, we're the committee  
11          together; condition 2, BLM doesn't care. That  
12          could be simply the CEC.

13                   So let me think about what we could do  
14          with language that would facilitate some future  
15          MOU. Maybe we can come up with a defined term.

16                   I mean it's going to probably  
17          necessitate, you know, varying from the typical  
18          formation of, you know, CPM in the Energy  
19          Commission's conditions, but I'm trying to come up  
20          with a word that's both singular and plural so  
21          that the agencies can decide.

22                   And maybe, as Mr. De Young notes, in  
23          some cases the BLM and the CEC will delegate their  
24          authority to a CBO, to use all the alphabet soup,  
25          who can be our single point of contact.

1                   So, let us think about how to come up  
2                   with a good term to put in the conditions that can  
3                   recognize that flexibility, so.

4                   HEARING OFFICER KRAMER:   Okay, just  
5                   understanding that, you know, we don't have the  
6                   power to tell the BLM to give up their rights.  
7                   So, you can ask us, but we'll probably say no to  
8                   that.

9                   MR. HARRIS:   No.   And we're not asking  
10                  anybody.   Like I said, there's certain non-  
11                  delegatable duties   you can't give up.   Same thing  
12                  with BLM.   And in those cases obviously you both  
13                  would be the approving authority.

14                  But we're working very closely with Mr.  
15                  Hurshman, who was here with his bad wheel and all  
16                  earlier this week.   So I think we can get through  
17                  it.   But I understand the need to propose some  
18                  language now, not months from now, so.

19                  HEARING OFFICER KRAMER:   If you come up  
20                  with it before your briefing deadline, it might be  
21                  good to circulate it then.

22                  MR. HARRIS:   If I come up before then  
23                  I'll circulate it to all parties before then, so.

24                  HEARING OFFICER KRAMER:   Do the other  
25                  parties have any comment on this issue?   Seeing

1 none.

2 Last issue, and this goes way back to  
3 the site visit/informational hearing where I think  
4 I raised the question of, you know, I understood  
5 that you had four -- or three different projects  
6 basically.

7 As Mr. Woolard explained, they're  
8 separate, limited liability corporations. And  
9 then they're sharing a kind of fourth common area  
10 for some of the facilities, water, I suppose;  
11 probably the gas, pressure pumps and that sort of  
12 thing.

13 And at the time I think I gathered that  
14 staff was assuming that a conditions approval  
15 would apply to all the projects, the separate  
16 owners as one entity. And didn't seem interested  
17 in trying to create a situation where, you know,  
18 the owner of, say, one might be in violation of a  
19 condition and the other parties would not feel  
20 responsible for that.

21 Because staff wants the requirements to  
22 apply to the whole of the entity. And I gather  
23 that the applicant was concerned about that, you  
24 know, probably because lawyers, when they're going  
25 over the loan documents, among others, would be

1           somewhat concerned.

2                       So I haven't heard much of anything  
3           since about whether that problem has gone away, or  
4           I don't see a solution in the conditions yet. And  
5           I'm just wondering if that's another avenue that  
6           you need to explore.

7                       MR. HARRIS: Yeah, it'll be on my to-do  
8           list in addition to writing briefs. I think what  
9           we had suggested in December is a single decision  
10          with a covering order that clearly, you know,  
11          defines who the entities are and what they're  
12          responsible for.

13                      Mr. Wheatland, Mr. Ellison and Ms.  
14          Pottenger and myself are working on trying to  
15          figure out exactly how to structure such a  
16          covering order.

17                      The other way to do it would be to print  
18          four separate decisions, which, to me, seems a  
19          little crazy. But that was on the table at one  
20          point.

21                      So I think I owe you all a view of what  
22          that order would look like. So, that's on my  
23          list.

24                      MR. RATLIFF: Do you mean an order that  
25          would be apart from the final decision, or --



1                   MR. HARRIS: Yeah, you know, your  
2                   decision -- some of them actually have it stapled  
3                   right on the first page, is an order from the  
4                   Commission and the date that it's approved,  
5                   saying, you know, there's five things typically,  
6                   or whatever those orders are. I'm envisioning  
7                   probably a little more detailed order.

8                   But, again, at the end of the day, it's  
9                   not the document, it's the order of the Commission  
10                  that is the actual certification. So, sort of  
11                  what we've had in mind at my shop. But I don't  
12                  claim to have perfect insight into all that, and  
13                  would be willing to talk to anybody about how they  
14                  think they should do that so that we have clear  
15                  compliance lines.

16                  And the issue for the separate entities  
17                  as I think Mr. Woolard talked about, is finance-  
18                  ability across the fault risk, to use the  
19                  terminology, so that the owner of one entity knows  
20                  that they can continue to get their output if  
21                  there's issues with one of the other sites, so.

22                  HEARING OFFICER KRAMER: Yeah, and I  
23                  think the issue will relate mostly to the common  
24                  area, because if one entity is out of compliance  
25                  we may say -- be inclined to say shut it down,

1 including the common area, because you've got a  
2 piece of that.

3 MR. HARRIS: But I think the -- I'm  
4 sorry.

5 HEARING OFFICER KRAMER: So you have to  
6 draft around all that, and in a way that doesn't  
7 look like it's got some loopholes from our  
8 perspective.

9 MR. HARRIS: I think basically, the way  
10 I'm envisioning it, although subject to the  
11 bankers who run things, is that the fourth  
12 approval for the common areas would be held as  
13 like joint tenants. I'm really getting into my  
14 old property law now, so it may be dangerous.

15 So it would be the same three entities  
16 would be the holders of that common area. So they  
17 would have an interest in making sure that  
18 obviously the common area is operated -- and the  
19 common areas are mostly the roads and some of the  
20 other infrastructure.

21 So that's the current structure as I  
22 understand it. It's three individual project  
23 companies, and then those three project companies  
24 holding the interest in the common areas jointly,  
25 as joint tenants.

1                   HEARING OFFICER KRAMER: Okay, yeah, we  
2                   will definitely need some time to look that over,  
3                   I presume, between staff and --

4                   MR. RATLIFF: Yeah, I mean, when --

5                   HEARING OFFICER KRAMER: -- the  
6                   Committee.

7                   MR. RATLIFF: -- we looked at this we  
8                   were just kind of impressed at how complex it got  
9                   and how difficult it would be to try to enforce  
10                  the enforcement conditions.

11                  And we just said, well, look, you're  
12                  trying to make this complicated ownership  
13                  arrangement our problem, and we can't buy it, you  
14                  know.

15                  If they come up with a way that we could  
16                  see that we could enforce provisions, I can think  
17                  of any number that might be difficult to enforce  
18                  against one, and without enforcing it against the  
19                  other, then I guess we'd be open to that.

20                  But I'm not sure it's so divisible,  
21                  frankly.

22                  HEARING OFFICER KRAMER: It's an  
23                  interesting question. I have enough to write for  
24                  awhile, so I'm not going to take that one on.

25                  MR. HARRIS: Yeah, this is definitely

1       our ownership. We hear the staff that our  
2       ownership structure cannot create enforcement  
3       complexity for them, undue enforcement complexity.

4               You know, I think it's a solvable issue  
5       because if, you know, I think the LUZ projects  
6       were held -- are held by several different  
7       entities. Maybe that was all done post-approval,  
8       I'm not sure. But there is a way to solve for  
9       these things. Some of the geothermal projects in  
10      the Geysers area, although many of those predate  
11      the Commission, I think those are also regularly  
12      traded as individual companies, so.

13             But I hear the admonition from staff.

14             HEARING OFFICER KRAMER: Okay. Well,  
15      the other model I would think of is where the  
16      corporations have an agreement among themselves,  
17      and you know, they appear as one to us. But  
18      whatever makes sense.

19             As we get further down the road we will  
20      have to discuss at what point, assuming that the  
21      recommendation is to approve if that is the case,  
22      then we'll have to talk about coordination with  
23      BLM and how their process is going. Because if  
24      that's the case, we don't want to have an approval  
25      go out and then BLM come back and say, oh, we need

1 to change a part of it, and force you into an  
2 amendment process, because that would defeat some  
3 of the purposes of the -- one of the three  
4 purposes that Ms. Lee put into her list.

5 Any final comments from any of the  
6 parties before we adjourn? Mr. Basofin.

7 MR. BASOFIN: Mr. Kramer, did you rule  
8 on the exhibits? I think I missed it.

9 HEARING OFFICER KRAMER: Yes, we did  
10 take them all in.

11 MR. BASOFIN: Okay, minus the ones you  
12 excluded from Jeff's list?

13 HEARING OFFICER KRAMER: Right.

14 MR. BASOFIN: Okay.

15 HEARING OFFICER KRAMER: Anything else?

16 From me, thank you all for  
17 participating. It's been a struggle at times.  
18 You know, these are difficult issues and it always  
19 takes longer than we hope. But I want to thank  
20 you for your cooperation in working through to  
21 this point. And for your cooperation during the  
22 next portions of the proceeding.

23 Commissioner Byron.

24 PRESIDING MEMBER BYRON: Thank you very  
25 much, Mr. Kramer. I would, as well. Let me take

1       one minute or so to just compliment you all,  
2       compliment all the parties on the way you  
3       conducted yourself at least most all the time for  
4       the last four days.

5                   (Laughter.)

6                   PRESIDING MEMBER BYRON: I'm very  
7       grateful to the intervenors. I really think  
8       you've brought a lot of richness to the  
9       evidentiary record that we've got here today,  
10      besides your conduct.

11                  I was also very impressed with the  
12      expertise that we had, without disparaging any  
13      other cases, they're not always this good. So I  
14      thank you very much.

15                  And also, you know, I always try and  
16      keep track of the most interesting words that get  
17      entered into the record, and I give that award to  
18      Ms. Smith for "jeepers". I really appreciated  
19      jeepers getting into the record.

20                  (Laughter.)

21                  PRESIDING MEMBER BYRON: You know, I'm  
22      mindful, and perhaps I should have said this when  
23      we began, but this is a really interesting  
24      situation that we've got, not just for the  
25      intervenors and the staff and this Commission, but

1       we're really trying to balance the concerns of  
2       this specific project with the overall benefits of  
3       renewable energy. And the statewide policy goals  
4       that we have.

5               It certainly warmed my heart, and I  
6       believe Commissioner Boyd's as well, to hear that  
7       you all -- not all of you, but many of you have  
8       read our Integrated Energy Policy Report, and  
9       there was reference to our Renewable Energy  
10      Transmission Initiative. And, of course,  
11      greenhouse gas reduction undermines everything  
12      that we're talking about here.

13             And so it's interesting that you have to  
14      balance it out with your concerns and interests  
15      that you've raised here.

16             And I'll add that we really appreciate  
17      the efforts of the applicant to propose such a  
18      creative and responsive proposal that meets our  
19      state's energy policy goals. Namely, we're trying  
20      to reduce our dependence on fossil fuels.

21             But as the evidentiary record has made  
22      clear to me, that even that renewable projects  
23      certainly has its impacts. And if we were to  
24      approve this application for certification there  
25      is certainly a need for mitigation.

1                   So I look forward to seeing your briefs.  
2           Hopefully we'll have all we need. And if we  
3           don't, we will certainly let you know.

4                   And we're going to have some very  
5           difficult decisions to make regarding this  
6           application. Our intention is to do it in a  
7           timely manner. But that's what we do here. This  
8           Commission has a very good track record of trying  
9           to balance all these issues and put out a solid  
10          decision based upon the evidence.

11                  I'm very grateful that I have  
12          Commissioner Boyd, and I hope you are as well,  
13          serving on this Committee. Just so you'll know,  
14          we will make a recommendation in the form of a  
15          proposed decision that will go to the full  
16          Commission for their decision.

17                  I think that's it. I'm very impressed  
18          -- I forgot one important party in all of this --  
19          with the quality of the work by the staff. We're  
20          extremely dependent upon the analysis that you've  
21          conducted over the course of time here. It was  
22          very helpful. And, please, Mr. Kessler, make all  
23          of the project participants know that I do very  
24          much appreciate the work they've done on this.

25                  Having said all that, the burden now



1 rests, for the most part, with the Committee.

2 And, Mr. Kramer, we're going to be depending upon  
3 you to -- as we have been, to continue to move  
4 this forward in a timely way.

5 Unless there's anything else that you  
6 need to add --

7 HEARING OFFICER KRAMER: No.

8 PRESIDING MEMBER BYRON: -- I will thank  
9 you and say we are adjourned. Whatever you say  
10 from this point on will be off the record.

11 (Whereupon, at 5:18 p.m., the hearing  
12 was adjourned.)

13 --o0o--

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I, PETER PETTY, an Electronic Reporter,  
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January 29, 2010

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